

The United States Miller

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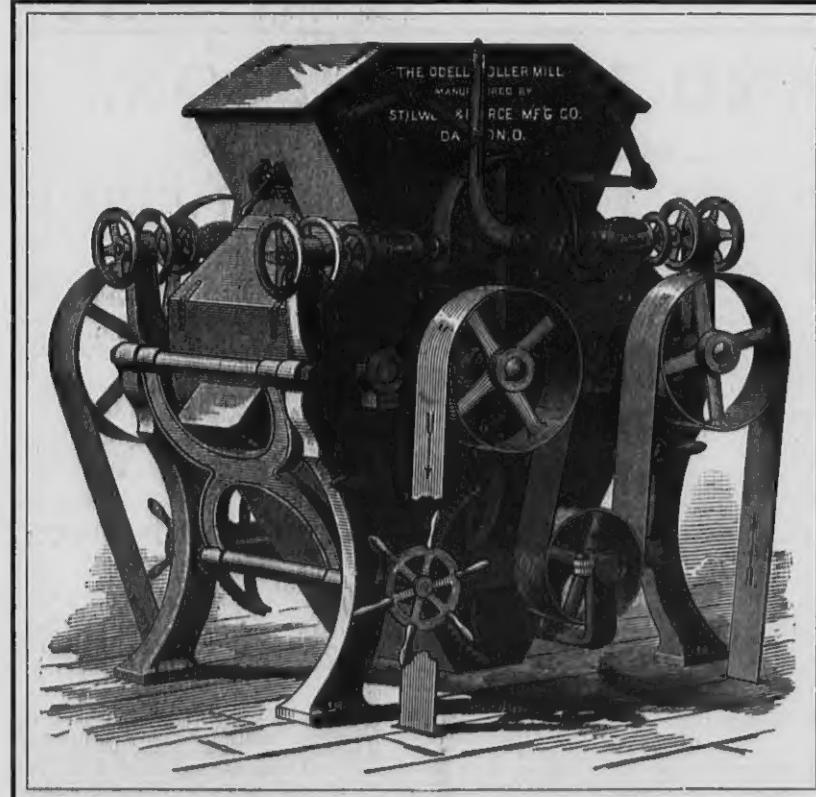
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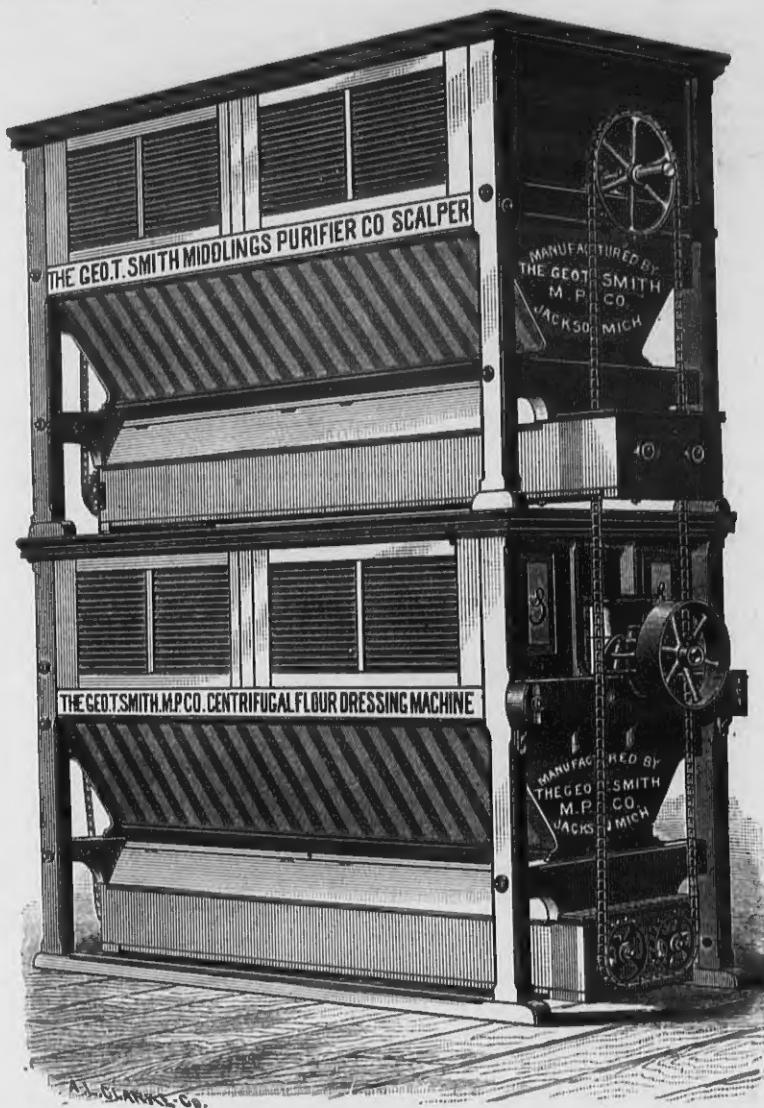
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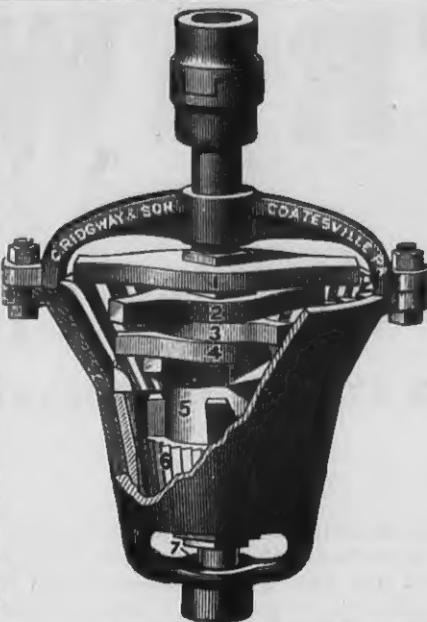
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STRAWS

WHICH SHOW HOW STRONGLY THE BEST MILLERS FAVOR THE

GRAY'S NOISELESS BELT ROLLER MILL AND THE ALLIS SYSTEM OF ROLLER MILLING.

Messrs. C. A. Pillsbury & Co., the largest milling firm in America, after using the Gray Noiseless Roller Mills for four years, in competition with machines of various other makes, when they decided to rebuild the "Pillsbury B," strictly stipulated that no other Roller Mills but the Gray Patent should be used, and all bidders were required to bid with this understanding.

The Washburn Mill Co., of Minneapolis, when they decided to rebuild their "Lincoln Mill" made the same stipulation as above, and the firm building the mill, though manufacturers of a rival machine, are forced to use the Gray Noiseless Roller Mills. The Washburn Mill Co. had used the Gray machines for four years, knew their merits, and were not disposed to try any experiments.

Messrs. Kidder & Sons, Terre Haute, Ind., after an experience of over four years in using Gray's Noiseless Roller Mills, will use no others, and for the enlargement of their "Avenue" Mills, have ordered eight more of these famous machines.

Messrs. Darrah Bros., Big Rapids, Mich., whose mill, built on the Allis System in 1884, was destroyed by fire a few months since, in rebuilding, would use no other machinery or system, and only required in their contract a guarantee that the mill now building for them should be as good as the mill built in 1884.

The Lanier Mill Co., Nashville, Tenn., after three years' experience in running the mill built for them on the Allis system, and using the Gray Noiseless Roller Mills, have placed their order for their new 500-bbl. mill at Memphis, Tenn., with the same builders, none other being asked to figure on the work. The Lanier Mill Co. are also increasing the capacity of their present mill, and refitting it on the Allis system. No stronger proof can be given of the superiority and perfect working qualities of the Allis System and Machinery.

The Weston Milling Co., Limited, Scranton, Pa., which operates one of the largest bakeries in the East, recently decided to add an extensive roller mill to their plant, and placed their order for a mill on the Allis system, and using the Gray Noiseless Roller Mills, stating that their long experience in using flour from mills in all sections of the country convinced them that the Allis system of milling was far superior to any other, and that they run no possible risk in adopting it, as they knew beforehand what results it would produce.

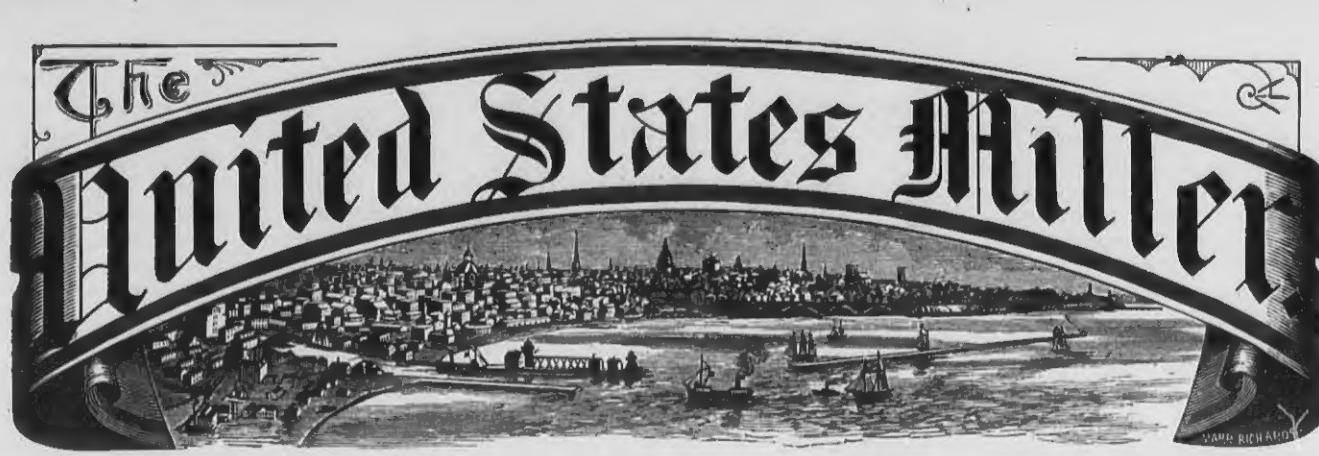
A whole stack of "Straws" like the above are open to the inspection of millers who are interested. The demand for the celebrated Gray Noiseless Roller Mills, as shown by the order books of the manufacturers, is larger now than ever before, and is steadily increasing. The millers of this country are beginning to see that it takes something more than a fine cut and deceptive advertisements to make a good Roller Mill, and that to insure good results when a mill starts, the practical knowledge drawn from years of experience in designing and building the most successful flour mills in America, is worth vastly more than the strongest guarantees or the most plausible theories.

EDW. P. ALLIS & CO.,

RELIANCE WORKS,

MILWAUKEE, WIS.

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PULL IT WHEN IT'S RIPE.

Say hesitating, anxious one,
Why vacillating stand,
And let the best chance of your life
Go slipping through your hand?
Why not brace up your weak back-bone
And show the proper stripe,
By reaching for that chance at once
And pull it when it's ripe?
A million men have failed, because
They were too slow or fast,
And millions more will do the same,
As long as men shall last.
Why should there be so many folk
Of such unhappy type?
There wouldn't be, if men would watch,
And pull it when it's ripe.

HOW STARCH IS MADE.

The Indianapolis *Sentinel* describes a visit to the Franklin Starch Works of Thompson, White & Co., where so called non-chemical starch is made.

The works are located in the north-east part of the city, on a ten-acre lot, usually known as the Old Fair Grounds. The buildings cover three acres of ground. The main building is 150 by 200 feet, two stories high. Just south of the main building is a large crib with a capacity of seventy thousand bushels of corn.

Near the east side of the main building are the large vats for the reception of the coarse feed, and a little farther south are the gluten vats—two in number, sixteen by two hundred feet, and about four feet deep. Near the south-east corner of the main building the corn is carried by a belt from the crib to the sheller, which has a capacity of over one thousand five hundred bushels a day, and is run by a separate engine of forty horse-power. After the corn is shelled it is carried to the "cleaner," where all the dust and dirt is removed. It is then by means of an elevator deposited in a long bin in the upper story. By means of separate spouts the corn is conveyed into fourteen large "steep tanks" holding six hundred bushels each. After being covered with hot water it is allowed to remain six days, or until it is sufficiently soured. It is then by a screw conveyor and elevator taken to the millstones hopper. Just before it reaches this point it passes through a revolving wire screen, which separates the corn from the water.

It is then conveyed to the mills, four in number, being mixed again with water, and after going through two sets of four-feet millstones it passes below to the "shakers." These are vibrating boxes, open at one end and covered with a wire and satin sieve.

Here the starch and gluten are separated from the solid particles of the corn which is called "coarse feed." This descends into a well and is pumped up by means of a powerful force pump, and run off into vats for its reception, where it is drained and ready for sale. After passing through the "shakers," the starch and gluten is conveyed to the "run house," receiving on its way a stream of water. The run house is a room one hundred feet square, containing fifty-six troughs, about eighteen inches wide and one hundred feet in length. These runs are slightly inclosed, and while passing through them the starch settles to the bottom, while the watery part passes off and is run into the gluten vats. The starch is then conveyed to the agitator wells, and, being mixed with cold water, is thoroughly agitated by means of a revolving rake. It is then pumped up and passes through a bolting reel, where all the impurities are separated, and the pure starch conveyed by means of pipes, to sixty-three settling tubs. The water is then drawn off, and the starch, pure and white, is conveyed to a large receptacle, where it is placed into the mould boxes.

After remaining in the mould boxes three to four hours it is cut into blocks about six inches square, elevated to the second floor, placed on cars, and run into the crusting room where it remains over night. The next morning the blocks are scraped, or rather the crust cut off with sharp knives, and are wrapped in blue or bronze paper, by one person, at the rate of eight hundred packages per hour. These packages are placed on cars with slatted frames, holding 392 packages each. About one hundred of these cars are used. As they are filled they are run into the dry room, which is kept at an average temperature of one hundred and sixty degrees by means of steam pipes. The starch is kept here until it is thoroughly dried into the prismatic form in which it is purchased in the market. The cars are run to the wareroom and the packages wrapped in blue paper or packed in boxes, while those in brown paper are conveyed to the packer and packed in barrels by means of a flour packer, at the rate of two hundred barrels a day.

The principal brands of starch manufactured by the Franklin Works are the "Acme," for laundry purposes, "Pure Corn," and "Powdered," for confectioners and baking powder manufacturers. All of these brands have a high standing in the market, and find ready sale in all the principal markets of the country. The machinery is all of the most approved pattern, and is, by various ingenious de-

vices, made to do the principal part of the work. Still about fifty men are employed when the works are in operation.

To obtain a superior quality of starch the corn must first be properly steeped, and the operator in this department must have skill and experience. To secure starch from corn in paying quantities it must be properly ground. The next important point is in the sieving. The smallest hole in the sieve will admit impure matter, which it is hard to eliminate. Again, particular attention is required in the precipitation of the starch on the inclined plane. In the dry room great attention must be paid to the temperature; too high a temperature will produce a scorch, and too low a mould.

APPLICATIONS FOR SPACE.

Advices from New Orleans state that applications for space in the various buildings of the American Exposition, to open on November 10th, are daily pouring in from States, cities and large business firms in all parts of the United States; while the countries of Mexico, Central and South America, as well as important places in Europe, are sending in a large quota. In fact, where, at the outset, the filling of the oceans of vacant space caused the promoters of the enterprise no inconsiderable amount of anxiety, the situation has in the past few months been entirely reversed, and the management deem it their duty to inform those intending exhibitors who have not yet applied for space to do so at once, ere it be too late. While this is, of course, a very gratifying state of affairs, that the management is able to announce, still it shows the necessity of city and individual exhibitors who have thus far failed to make their applications for space doing so immediately. There is no longer any question of the success of the American Exposition; it has been constructed upon sound business principles; it is operated by business men, to solve the commercial problem of the day—securing an outlet for our surplus manufactured products. The non manufacturing countries of Spanish and Portuguese America are looked to for the relief needed. At the coming Exposition they will contrast their resources with ours, and afford the opportunity of reaching an early understanding for the establishment of business relations of mutual advantage. This question of new trade relations for merchants of the United States necessitates prompt action on the part of our manufacturers and business men, in order that they shall be represented in the magnificent Exposition to take place in New Orleans, this winter.

ROLLER PROCESS CORNMEAL.

Richard Birchholz, writing for the *Millwright and Engineer*, says the best cornmeal upon the market at present is ground on corrugated rolls in a series of reductions. No stone can produce so even and granular an article, as it will flour a great part of the stock and the bran. The same dress of the stone best fit to convert corn kernels into meal is too fine to grind feed in required quantity and too coarse to grind rye flour. It is out of the question that it pays to have one stone or set of rolls for feed alone and one stone for meal and graham, rye and buckwheat flour. As a plant of a number of corrugated rolls (from 4 to 6 pairs) with the necessary scalpers is rather expensive, how can I produce a better article with stones and rolls combined? I find myself not always ready to answer my own questions, especially when asking myself how to become a millionaire a little more "sudden," but this question I can answer promptly.

The corn kernel consists of four characteristic matters, viz: The bran, the starch, the germ and the glossy, hard substance. The best cornmeal is free of bran particles, and contains but little of the starch and germ. The oil of the latter, amounting to 6 per cent., or three pounds per bushel, is the cause of the meal becoming rancid, not properly kiln-dried. Good meal made of yellow corn has a clear saffrony appearance, of sharp touch; the meal of white corn looks clear, transparent and glossy. The corn kernels are too large for any machine to grind them out in one reduction. The stone in grinding corn to meal, pulverizes a great part of the starch and the germ, the combined flour of both having a dirty, grayish appearance; it also chops up some of the bran; the finished meal has no rich yellow or white cast; it looks dirty, feels soft and slippery, and does not keep. Suppose we have a feed-grinding plant and besides that a stone to grind meal; then we need in addition a double corrugated roller mill, divided, one pair of rolls corrugated four teeth per inch, the other pair 24 teeth per inch. We furthermore find necessary a centrifugal scalping machine, clothed with heavy wire, 26 inch mesh (an old smutter or a bran-duster properly clothed will do the work), a five-foot scalping reel and a duplex cornmeal scalping machine. The corn is broken on the pair of coarsely corrugated rolls. By this operation a great deal of dust is set free; it is the starch falling apart. This broken mass is acted harshly upon by the centrifugal scalper, and the hard substance is polished; the starch and germ are both more or less loosened by the attrition of the parts among themselves, or on the wire cloth. The flour dropping through the meshes is of a dirty color and must be spouted to the feed. The tailings of this centrifugal scalper are to be spouted to the stone, which is bosomed out considerably, the grinding surface not to be wider than six inches around the skirt, the stones to be dressed to granulate. The meal of the stones is to go to the duplex scalping machine, which should be made to deliver five products, viz: flour, (which is to go to feed), fine meal, coarse meal, coarse gritz and bran. The latter is finished, the coarse gritz should be spouted to the fine corrugated roll, and after it passes the rolls elevated to the plain scalper, built on the top of the duplex scalping machine, which takes off the fine

bran; the siftings are directed to the duplex scalping machine, where the flour is taken out.

The meal is very good and cheaply made. If it is desired to further improve it, then the miller will have to reach into his pocket and buy a small cornmeal purifier, to suck out the minute particles of bran. If he wants the meal for shipment and must needs keep it sweet for a reasonable length of time he will bob down serenely for more ducats to buy a meal drier.

The millers will readily understand that when grinding the corn three times, far less bran particles will be chopped into the meal. The stone grinds high, and the corrugated roll will cut the bran as little as any other corrugated roll does in comparison with stones. As the stone is dressed to granulate, it will be fit to grind rye and wheat for graham flour. It will of course be necessary to have an extra rye reel.

A BLACK INVENTOR.

A recent issue of the Montgomery (Va.) *Messenger* contains the following:

Minues Haden, a worthy colored blacksmith of this place, has lately invented one of the most ingenious and valuable devices we have ever seen. Being a poor man and unable to employ a hand as striker, he cast about how he might do by machinery what heretofore could be done only by the hand of man. The result of his cogitations is a piece of very simply machinery by which the striking hammer is easily and effectively worked by his foot, while he has both hands free to hold his iron and use the small hammer. To a listener the blows come as naturally and as rapidly as if there were two men handling the hammers in the old-fashioned way, but there is a difference. The machine, by an easy motion of the foot on the treadle, strikes a harder blow than any man can strike, and can be made at will to strike as light a blow as may be needed. But the use of this simple and cheap device in the blacksmith's shop is not half. It can be just as easily used, and will find a large field of usefulness, in driving a drill for blasting rock. In its present form, without any change, one man can drive a drill perpendicularly as easily as three men now do the same work. By a very simple and easy plan hammers can be provided and attached, which will make it just as easy to drive a hole horizontally or at any required angle, and the whole work can be done by one man. The machine is portable and need not be very heavy. Mr. D. W. Frizzell has become a part owner of this invention. A caveat has been secured, and Mr. Frizzell is expecting to receive a patent as soon as the papers are made out.

GRADUAL REDUCTION WITH BURRS.

The discussion about millstones seems to become more settled, and, by all appearances, the millstone is not entirely thrown away. The millstones, as they are yet, were built and driven for different work. Then what is wanted at present? They were made to reduce the wheat to flour by one reduction, and for that work were they built and driven, but as soon as the wheat had to be reduced gradually, they did not answer the purpose. It was not the nature of the stone which did not answer, but it is the manner in which

the stone is hung and driven. As soon as high milling came in favor, their faults were found out, but the reason was not altered. Their failure to gradually reduce lies in the cockhead which the stone swings on. To reduce wheat gradually on stones, the runner-stone has to run positively parallel to the bed-stone, no matter what the distance is between the stones, and to balance the runner so accurately that the variation is less than the thickness of a middlings kernel, is a difficult process, at least, even if possible. And if the runner don't run with that exactness, it will first pulverize the bran and then wear off one-quarter of the runner more than the rest of the stone, so that after a while the runner is untrue, no matter how straight it was in the beginning, and the miller has to straighten it again. It is the pulverizing of the bran which brought the stone into disrepute, and nothing else. Now, to do away with the cockhead and have the runner rigid on the spindle, there are two ways. The upper runner and the under runner will each work alike and do the work satisfactory, provided they are made right and substantially kept that way. The upper runner on this system is more liable to get out of order than the under runner. First, by the taking off for dressing and laying on again, and, second, the support is not so substantial. The under runner is not taken off for dressing, has a better and more substantial support, and better facilities for regulating it after dressing. Such an under runner, of 3½ feet diameter, will do more work than a common four-foot stone will do. The middlings may be reduced just as much as the miller wishes for till it gets reduced to the thickness of the bran particles, because the positive parallel distance does not pulverize the bran, and a careful miller will obtain a result which will satisfy any reasonable man.—*Northwestern Miller*.

HEATING FEED WATER BY EXHAUST STEAM.

It has been a commonly accepted doctrine, without any really distinct reason being given for it, other than usage or practice, that feed water for the steam boiler could only be heated to from 170 deg. to 208 deg. F. We have seen a great deal of energy expended upon the debating of this question, and always with the same general result, viz., that the feed-water heater, although an essential part of the apparatus for steam-power, was at the same time incapable of accomplishing anything more than our grandfathers accomplished in 1784, and that for the same reason the stone was carried in one end of the bag and the corn in the other, the man who attempted to show feed water higher than 208 deg. or 210 deg. must either be stretching the truth or yielding to the delusions of his imagination.

We have recently had some experience in this matter which has been valuable to us, and at the risk of stating a thing which is not so, or being mistaken, we propose to give some facts. We have often spoken and written upon the general delusion of throttling steam, carrying it around a variety of corners, angles, bends, and of the necessity, in working steam, always to work it as free as possible from the boiler to the end of the exhaust pipe. The same thing refers to some of the feed water heaters which are now in use. Their inventors or constructors, from a lack of knowledge, seem to suppose that

steam can be carried up and down, around and around, or can go through sundry gyrations in its course, with a presumptiveness on our part that the designer supposed that, with little obstructions in the passage of the stream, he was going to give out more heat to the water. But this is all wrong. The old idea holds good, and practice demonstrates its correctness; if the steam is to make a turn in its exhaust, give it ample room in which to do it, but the nearer a direct line the steam can flow the better, now only for the freedom of exhaust, followed by no back pressure, but as well for its giving out the heat it contains to the feed water, with which it comes indirectly in contact. It is no uncommon thing now to find positively no back pressure, free exhaust of the steam, and yet to find feed water going into the boiler at 214 deg. F., and not using a doctored thermometer to accomplish it either. In other cases as high as 220 deg.; we do not know but even higher than this has been secured.

The reader may naturally ask why and how. That is not for us to discuss; we are dealing now with facts, not with vagaries. Our own basis is, however, that with a rightly constructed heater, the steam shall not be driven through tortuous passages, shall not be deflected from a straight line or free egress, unless, if it has to turn, the area is largely increased over that of the first passage, which must be in excess of the total square inches of area of the exhaust pipe. When an engine exhausts under two, three, five or ten pounds above the atmosphere, there is a temperature accompanying the exhaust, especially where this is being moved rapidly, that gives a very considerable heat out to the water, in case the possibilities exist for the steam doing its work correctly. It is also likely that whenever the construction of a feed-water heater is such that the steam is tortured in its leaving the engine for the atmosphere, the steam is still further reduced even by a trifling back pressure (very much as direct steam is passed through pipes, valves, bends, etc., until it turns more and more to water) returning more and more to water, and reducing its sensible heat and its capacity for imparting heat to the feed water, with which it comes indirectly in contact.

If we take steam at the atmospheric pressure of fifteen pounds, we have 213 deg. sensible heat. If, now, we add ten pounds release, it certainly requires a little time for that pressure to equalize itself, or come down to the pressure of the atmosphere. In that case we have 240 deg. of heat for a time. Now, let us suppose the heater to be properly arranged so as to aid in partially condensing the steam, or at least by making a change of 30 or 40 deg., will it not aid to bring the steam to the heater quicker, something after the manner of an air pump, then it would if we allowed free flow, depending upon the pressure and the pulsation of the engine? Why not, then, utilize some of the difference between 212 and 240 deg.? We often hear men speak, when looking at the exhaust pipe, of the impossibility of heating feed water with exhaust steam at the atmospheric pressure. A quarter or half pound increase over atmospheric pressure carries with it a slight increase of temperature, and it is no uncommon thing for us to see exhaust steam shoot into the air from the top of a building, four, five, or in some cases twenty feet high. Is

there not a difference between atmospheric pressure and the pressure of the steam whenever this occurs? If the actual pressure of the atmosphere is 14.7, it strikes us that 15 or 15½ pounds only are necessary to make quite a shoot of exhaust steam into the open air, and this makes a corresponding increase in temperature. Now, if the heater be rightly constructed, there is no difficulty, it seems to us, in accomplishing more than 208 or 210, or 212 deg. in the feed water for the boilers. We have seen the thing done, and know that it is being done every day, consequently it is past theoretical confirmation. It is not a matter of old usage or ancient practice, but a fact that to-day water, when confined, can be heated to exceed 212 deg. F., but in too many cases it is from 30 to 50 degrees below that amount, as we have over and over again proved in our last twenty years' experience in this line, and we believe there is a chance still for progress in the heating of feed water or of increasing the temperature wherever the engine exhausts under pressure of several pounds above the atmosphere. On the authority of the *Western Manufacturer*, in which journal the above article appears, it advances the opinions of one of the ablest scientists in the country.

REVIVAL IN THE FLOUR TRADE AT ST. LOUIS.

"Flour is on a boom," says the *St. Louis Republican* of Sept. 17, "and is dragging wheat with it, and the business portion of the exchange yesterday was the flour corner. Prices advanced sharply and everybody appeared to have all the business he could comfortably manage. The demand had at last overtaken the supply, and even passed it, and for the first time in many months, orders were liberal, both as to quantity and to price. The first cause of the boom was, of course, the improvement of the consumptive demand, but this, in turn, was based on a prospective advance in values, in the immediate future. Consumers have been running along from hand to mouth for the past three months, and when the usual fall demand came, stocks were phenomenally light and soon exhausted. Consequently it became necessary to buy quickly, and, in view of the firming up of the market, heavily. Orders thus came in to local millers in fine lots and with an entire absence of the hair-splitting bids that marked the business of a few weeks ago. Low freights to the East enabled the millers, for the first time in many years, to do an Eastern and even an export business. Stocks of flour have been decreasing rapidly, and it is estimated that the 150,000 barrels in store in St. Louis last week have been reduced fully two-thirds, with no apparent diminution of the demand. In consequence of this improvement in the flour trade the milling grades of wheat have advanced steadily, and yesterday prices were to a dot as millers wanted them—steady and even firm, with an occasional upward tendency of a half cent or so. The situation in St. Louis is in some respects peculiar. There are heavy stocks of No. 2 wheat in the elevators, approximately 2,500,000 bushels, three-fourths of it being in East side houses. Receipts are exceedingly light and becoming more so daily. Of the few cars of wheat coming in but a small percentage contain No. 2 wheat; practically none of the Western wheat received is of the

milling kind; the Indiana wheat is all right but it stops on the other side. The mills on this side, therefore, are in a somewhat worse position than those situated in the country, across the river."

FORTUNATE MILLING OPERATIVES.

On the 28th of September the great Minneapolis milling firm of C. A. Pillsbury & Co. divided the surplus over a certain amount of earnings among their workmen who have been with them five years, in accordance with a practice inaugurated three years ago. Two years ago the amount thus given out was \$20,000, last year it was \$24,000, and today it was \$27,000. So well has this co-operative plan worked, stimulating the interest among the men in the company's success, that another leading milling firm is thinking of beginning it next year.

STRONG LOVE REWARDED.—A little girl, eleven years of age, at school, was directed by her teacher to write a composition on "Strong Love Rewarded." The following is the composition:

"There was a young and handsome lieutenant, and a young, beautiful girl, and they loved each other; but their parents wouldn't allow them to get married. But one day the lieutenant won a large amount of money, and then there was nothing to hinder. They got married and were happy, but they didn't get children. So a war broke out and he was commanded to go and fight for his country. While fighting he was taken prisoner, and was in prison seven years. Then he came home, and who can tell his joy when his wife showed him seven little children she had got while he was away! In this way did strong love get rewarded!"

HE COULDN'T GET OUT TO VOTE.—A party of English tourists were coming from the Yosemite last week, when one of them, who had been dubbed the interrogation point of the crowd, espied a pair of brogans sticking in the face of the bluff, toes down. Nudging the coach driver, who chanced to be old Bill McClenathan, he asked: "Ah, driver, I wonder what the doose those boots are doing up theah?"

Old Bill scarcely glanced up, as he replied: "That's a man buried up there, and the boys were in such a hurry that they did not dig deep enough to get his feet in."

"Bah Jawve, that's very strange, ye knew; I'll make a note of that, but I say, driver, the toes point down. He must be buried on his face, d'y'e knew."

"Yes," said old Bill, musingly, "he was an Irishman."

"But what's his being an Irishman got to do with his being buried face down?" asked the now thoroughly aroused Britisher.

Old Bill looked at him in a pitying manner for some seconds, and then, in a tone full of deep sorrow and astonishment at the tourist's ignorance, said: "Well, do you see, we've got a sort of superstition out this way, that on election day every dead Irishman gets out of his grave and votes, and so lately we've got to burying 'em on the top of the hill, face down, so that the more the corpse tries to dig out the deeper he gets in the ground."

"Oh, yes, I see," said the Englishman, gravely, "I'll make a note of that for my book."—*San Francisco Post*.

**ON THE JACKETING OF WORKING CYLINDERS
OF STEAM ENGINES.**

BY A. S. GREENE, C. E.

Among the various methods for increasing the efficiency of steam engines, and one that has been almost universally adopted, particularly in engines using large measures of expansion and in marine compound engines, is the system of steam jacketing the working cylinders. There are various ways of effecting this, but the most usual is to cast a cylinder somewhat larger than would otherwise be done and then to fit steam-tight within it, a smaller working cylinder, thus forming an annular space surrounding and extending its entire length, and to which steam of the boiler pressure and temperature may be constantly supplied. The cylinder heads are also cast with double shells, live steam being admitted to the space thus formed, so that the working cylinder is completely surrounded in all parts with a space that can be supplied with steam of the highest pressure and temperature employed in the engine. By this means a part, at least, of the heat that would otherwise have been lost by the steam within the cylinder during expansion is retained, or, more properly speaking, the heat lost by the expansion steam while performing work is partly restored by the abstraction of heat from the steam within the jacket. That only a part of the heat is thus restored, is due to the fact that the cylinder shell opposes a certain amount of resistance to, and that a certain amount of time is necessary for, the transmission of heat.

Of course, all the heat that is supplied to the expanding steam from the jacket must first be obtained from the original source, namely the boiler; and the jacket being also subject to a further loss of heat from radiation from the exterior surfaces, it follows necessarily that the amount of effective heat for transmission into work by the medium of the jacket is much less than that drawn from the boiler to supply it. It is, in fact, a sort of "robbing Peter to pay Paul" process, with this disadvantage, that the amount received by Paul is very considerably less than that of which Peter has been robbed.

If it be really advantageous to reheat the expanding steam in the working cylinder, it would seem that some more rational and effective process, in which the resistance of the cylinder shell to the transmission of heat, and the loss from radiation, from the excess of exterior surface of the jacket over that of the actual working cylinder, would be avoided. This could easily be accomplished by supplying a small jet of steam from the main steam chest or steam pipe directly to the interior of the working cylinder, during the time of expansion, by means of suitably arranged and automatically operated valves. The ports for this purpose would necessarily be small; they need not be as large as the section of the pipe ordinarily used for supplying steam to the jacket, for the same amount of heat supplied in this direct way would certainly effect a much greater amount of reheating than could possibly be done through the medium of the jacket. If, as it is generally believed, the loss of heat within the cylinder produces a condensation of the steam, which, instead of being deposited as water on the inner surface, remains as a kind of mist distributed throughout the interior,

then certainly a jet of hot steam mingled directly with this mist must be more effective in reheating and converting it into dry steam than the surface heating from the jacket.

The writer is well aware of the tenacity with which engineers, and particularly the builders of steam engines, cling to pet theories, especially after they have been so generally adopted in practice, and can readily understand that where profits are reckoned as a percentage of the labor and material employed in building machinery, the excess of these necessitated where the steam jacket is adopted would be a powerful argument in its favor; but from an experience in the use of steam, extending over a period of more than twenty-five years, he has reached the clear and decided conclusion that there is nothing to be gained by the use of the steam jacket, or any equivalent, that cannot be better and more rationally secured by other and more direct means.

The steam engine being a machine for the transformation of heat into power, steam acting simply as a vehicle for carrying that power, the entire question, outside of mechanical details, is reduced to a question of heat. As it is axiomatic that a part cannot be equal to or greater than the whole, it is hard to understand how a part of a given quantity of heat can be made to yield more work than the whole of it, or that a given quantity of heat indirectly applied can be more effective than when it is directly applied; and yet this is exactly what is expected of the steam jacket, the jacket being supplied with a certain amount of heat, only a part of which, it is well known, is to be effective within the cylinder, or in performing work. It is plain that, of the heat supplied to the jacket, the loss due to the resistance to transmission through the shell of the cylinder, is a loss which does not obtain when the heat is applied directly to the interior of the cylinder, and that the loss due to radiation from the exterior surfaces, which, though small compared to the total heat supplied to the jacket, must be vastly greater than that from the unjacketed cylinder, from the fact of the great excess of those surfaces, and the higher temperature constantly maintained beneath them. Again, the heat from the jacket, which is effective within the cylinder, must act in re-evaporating previously condensed steam, or in superheating, thus increasing the tension, and the steam of increased tension thus produced is subject to losses of the same character within the cylinder, as if supplied directly from the main steam pipe at first, though the limits between which the losses occur may be different with the jacket from what they would be without it.

Although the heat is constantly maintained in the whole jacket at all times, it can only be efficient in a part of the cylinder which is on one side of the piston, for, on the opposite side, it is communicated to the vacuum space and must be a dead loss for as great a time as it is a gain. Hence, the supposed gain attributed to the use of the jacket, it is believed, must be imaginary or due to some other cause.

It has been observed on several occasions, when running engines with the starting valve slightly open to one end of the cylinder to prevent thumping, that, although during half the revolution communication was open directly to the condenser, causing a clear loss,

the gain during the other half of the revolution was sufficient to apparently compensate the loss, so that the revolutions were not reduced, nor the coal consumption materially increased; and this in one case with the low-pressure cylinder of a compound engine, the valve being but slightly open and passing steam from the main steam pipe. A case is also remembered where a steam engine builder contracted with a mill owner to remodel an old engine and fit it for running his mill, for which he was to receive in payment the price of the coal saved in a certain time by the use of the remodeled engine, compared with that used by the engine of a rival builder, running the same length of time.

The remodeled engine was carefully supplied with steam jackets, and with all the necessary accompaniments, but after a few weeks' use, and when it came to determining, by careful and accurate measurement, the quantity of coal consumed on which to base the payment, steam was carefully excluded from the jacket and air admitted instead, simply as a non-conductor to prevent loss of heat by radiation. It is needless to add that steam was not afterwards used in the jacket and, notwithstanding this exclusion, the engine continued to work with remarkable economy of fuel.

Whether there is any advantage to be derived from the use of the steam jacket or not, there are several disadvantages with which it is inevitably attended. There is extra material and labor required in the construction, and liability to loss of castings from their extra complicated nature, which causes extra first cost, besides extra weight and space occupied, together with the liability to cracking from unequal heating in getting underway, which are of special importance in the case of marine engines.

It is the writer's opinion that the best place to utilize the heat of steam in producing work is within the working cylinder, and not outside of it, preventing, as much as possible, the losses of heat, not by the use of the jacket, but with light sheet iron to inclose a corresponding space to contain air, which inclosure should be sufficiently tight to prevent circulation of the air and loss of heat from convection, and then carefully and thickly felted, and cased with wood outside of that. With the cylinder properly clothed, it is believed, better results would be obtained than by the use of the jacket, and certainly many extra pipes, valves, traps and much annoyance, would be avoided.

CORN CRIBS.

Wintering corn in imperfectly built cribs is still a wide-spread habit, though it is well known that it is greatly deteriorating to the value of the stored corn. Such cribs are invariably infested with rats and mice, which damage the corn not only by what they destroy by eating out the chit or germ of the corn, but also by the effluvia arising from their nesting places, contaminating the corn all over. Bitter corn arises largely from fermentation of the cob when put in wet. Too compact storing causes mold in the corn, which finally gets damp and rotted. All this generally involves a loss large enough to pay from 10 to 15 per cent. on the investment necessary to build a permanent crib that would keep the corn perfectly safe from the deteriorating influences for years.

A crib, eight feet at the bottom, flared to twelve feet at the top, and covered securely from rain, will preserve corn perfectly if dry enough to crib, because the air circulates freely all around. If such a crib should be extended, say 100 feet, the case would, of course, be different, and a crib uniformly twelve feet wide is still more unfit for wintering corn. Twelve-feet cribs are not unusual in the dry climate of the West, and keep the corn perfectly in ordinary seasons. But in seasons when the corn does not ripen perfectly, or when a long spell of foggy weather falls in, penetrating the crib, the corn becomes damp through and through. If warm weather ensues before the wind dries out the corn, the germ is attacked, producing bitterness and mold, resulting at length in rottenness.

The fact that corn kept compactly in wide cribs, never dare be used for seed, is sufficient evidence that such are not calculated to season corn in the best manner for other purposes. It is, therefore, wise economy that every one build crib room enough to properly safe all corn that must remain with him after March or April.

In building a crib three things are chiefly to be taken into consideration. Immunity from rats and other vermin, provision against rain and snow, getting in, and safety from heating by providing circulation of air.

Protection against vermin is obtained by elevating the crib eighteen inches above the ground on posts, placing an inverted tin pan on a large, flat, smooth stone, between the top of the post and the sills of the crib.

Danger from a leaky roof is averted by a proper inclination—not less than a quarter pitch—and by keeping the roof-boards, if so made carefully nailed. Grooved boards properly battened make the most perfect roof. For obvious reasons it should be a double-pitched roof, and extend over the side of the crib twelve inches to prevent the drip from driving on in top of the corn. If, before snow is expected, the crib be boarded tight from under the eaves, six inches below the top of the corn, this boarding to be removed early in spring, no danger from driving snow will be experienced. If, in addition, the side strips are put on diagonally, the drip will be distributed more equally along the outside and quickly dry.

To prevent heating or fermentation in the body of the crib twelve feet wide, the following plan will be found practicable and safe: Form a skeleton of six-inch fencing, two or three feet wide at the bottom and half the height of the crib, carried to a sharp peak at the top of the skeleton, running the entire length of the crib, and the spaces between the boards to be six inches wide. Thus the crib is virtually divided in two, allowing a horizontal and a vertical circulation of air through the center.

In a crib built in that manner, corn will never spoil unless it be put in wet.

CORN IN THE UNITED STATES.

As factor in the advancement of the material interests of America, and in the promotion of the general welfare of its people, the production of maize, or Indian corn, has played quite as important a part as any other one element.

Looking over the record of many years past, we find that while the production of this most

prolific and useful staple has within less than a score of years risen from 300,000,000 bushels to near 2,000,000,000, the per centage of our exportation of it has in an almost inverse ratio declined. This, in so far as it goes, in encouraging, since, as this relative declension has been going on, the exports of the products of corn, meats, lard, etc., have been vastly enlarged. It shows that the production of live stock has outstripped the needs of our rapidly increasing population, and kept ahead of the growth of those things upon which domestic animals feed; and that thus we are marketing the cereal products of our soil in a manufactured shape instead of the raw. It is this utilization of our grain that enriches our lands and in many ways, necessarily, the material wealth and prosperity of our people. But even this remarkable and gratifying progress should not satisfy us. Instead of thus profiting from a part, we should profit from the whole. The true policy of the nation is to send out the products of the soil in a manufactured form. Why do we export in a raw shape five-sixths or five-sevenths of a 6,000,000 bale cotton crop, valued at, say, \$125,000,000 and send out annually in a manufactured shape less than a couple of millions dollars' worth, while we are importing \$40,000,000 of similar kinds of goods—who can tell? And echo answers: Who?

Our soil and climate are especially adapted to an immense production of Indian corn. In these respects nearly all Western and Central Europe cannot compete—may be counted out. Unlike the marvelous increase in the area which in the past decade has been devoted to its culture on this side of the Atlantic, it has there been contracted. Their home resources for bread and meat are steadily contracting, while those of America are far more rapidly expanding. The point we wish more particularly to make is to retain at home everything in the shape of cereals that cannot be converted into a compact manufactured form for export. Let us keep at home all that our land will produce, the grain itself, the excrement of cattle, the offal of all animals, and even their horns and bones. Give Europe bread and meat, but let the profits of the commission from the beginning to the end be placed to the credit of the loss and gain account of America, and not to that of the foreigner. This is "protection" in its essence.—*N. Y. Produce Exchange Reporter.*

A MEETING OF GERMAN MILLERS.

On the 27th of July last the Görlitz Branch of the Association of German Millers held a meeting in the town of that name, which had more than a local importance, inasmuch as a general invitation had been extended to all members of the parent association, and this invitation received, by all accounts, a hearty response. Among the guests was conspicuous Herr J. J. Van der Wyngaert, the President of the Head Branch. Görlitz, it may be mentioned, is, after Breslau, the most important centre of the province of Prussian Silesia, and it is probable that some part of the success of the meeting was due to the fact that that event synchronized with an important local exhibition which has proved a great source of attraction, seeing that, according to the latest advices, it has been visited by over 900,000 persons. It in-

cluded several milling exhibits. The proceedings commenced at ten o'clock in the morning, in the Concert Hall, where Herr Th. Lehmann-Liebsgen, the President of the Görlitz Branch, welcomed his guests, and touched on the various circumstances that had induced the Görlitz Branch to invite their brethren to what would otherwise have been a local and semi-private meeting. They had taken this step partly on account of the abandonment of the annual general meeting, partly on account of their local exhibition, and also on other grounds.

The speaker then briefly sketched the history of the Association, which might, he remarked, celebrate its twentieth birthday in this present year, since the founding of the Association was due to a committee called together in 1865 in Dresden. Herr Van der Wyngaert, who still guided the Association, was even then placed at the head. In 1867 the first meeting of the Association took place in Berlin; in 1869 the first milling exhibition was held in Leipsic, and every year general meetings had been held, which had the advantage of enlarging the knowledge of those connected with the milling trade, and of enabling them to exchange notes. Later on followed other international exhibitions in Nuremberg and Berlin, which had been the means of stirring up a fresh departure in the art of milling, and thus it had come about that they had to report a highly satisfactory development of the milling engineer's art. Whereas formerly they could only look with envy on neighboring lands, especially southwards, where milling had reached a higher development—whereas in the first half of this century they could only buy high-class machinery abroad, and had English machinery and French millstones, to-day Belgium and France employed German engineers to erect their mills. They would hope for a much further extension of this development, and trust that they now stood, not at its end, but only at its commencement. And the Association had taken an honorable share in bringing them so far. Their inventors would lose spirit, if at their meetings they had not an opportunity of making their inventions known, and of hearing the views of practical men of them. Next year an International Milling Exhibition would be held at Augsburg. The speaker closed his speech by some remarks relative to the part played by the Association in representing the milling interest as affected by recent legislation.

Herr J. J. Van der Wyngaert then laid before the meeting the impressions he had brought back from his recent visits to the Antwerp International Exhibition and to the Paris International Milling Exhibition. In Paris he had seen much that was interesting, but yet little essentially new. The Antwerp Exhibition afforded very remarkable pictures of the industrial and decorative arts of many nations; and the great Machinery hall in particular was a sight which he had never seen surpassed in all his wide experience of shows and exhibitions.

A discussion of the private business of the branch, which then followed, was utilized by the guests for a visit to the Exhibition; and the day was fitly closed by a dinner, which was attended by two hundred persons.—*The Miller (London).*

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GRAND OPERA HOUSE—Performances every evening, and Wednesday, Saturday and Sunday matinees.

DIME MUSEUM—Performances every hour from 1 P. M. to 10 P. M. every day.

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We acknowledge the receipt of the Seventh Annual Report of the transactions of the National Association of British and Irish Millers, from the secretary, Mr. J. H. Chatterton, of 61 Mark Lane, London.

fail to take advantage of this opportunity to be fully and correctly reported in Cawker's Flour Mill Directory for 1886.

MEETING OF THE SUB-EXECUTIVE COMMITTEE OF THE MILLERS' NATIONAL ASSOCIATION, IN MILWAUKEE, SEPT. 22, 23.

A meeting of the Sub-Executive Committee of the Millers' National Association was held at the Plankinton House, Milwaukee, on Sept. 22 and 23.

The following matters were discussed and acted upon:

REBATE ON JUTE BAGS.

Resolved, That the secretary is hereby authorized to enter into correspondence with the treasury department looking to removal of obstacles now in the way of collecting rebate; and further

Resolved, That the president appoint a delegate from Minneapolis who, with the secretary, shall proceed to Washington to personally lay the whole matter before the department, and secure such rulings, as shall relieve the export flour trade from the vexations, annoyance and unnecessary expense, in short, from the prohibitory restrictions attending the collection of rebate on jute bags.

Resolved, That the committee be empowered to expend such moneys as it shall deem necessary to secure the required result.

TRANSPORTATION DELAYS.

Claims involving delays in transit were presented by different members of the Association for the consideration of the Special Committee on Export. Upon careful investigation it was found that the delay was wholly the fault of the trans-Atlantic steamship companies, whose headquarters and property were in foreign ports and could not be reached by the ordinary process of law in this country. Past experience has abundantly demonstrated that the trans-Atlantic steamship companies are virtually out of our reach; most all of them sail under the British flag, and their American agents are, with some commendable exceptions, wholly irresponsible whenever any claim for damage is looming up. Past experience has also demonstrated that our British correspondents, if they go to work vigorously and act in unison, can compel these steamship companies to indemnify them for losses arising from negligent delays and other shortcomings. We therefore strongly recommend the exporting millers to insist upon it that their European correspondents must protect themselves against the shortcomings, failures and neglect of their steamship companies, instead of calmly charging up all damages to the American shipper.

The Executive Committee of the Millers' National Association, after due consultation with many of the leading flour receivers of Great Britain, respectfully submit the following recommendations to the exporting millers with the hope, that these rules and regulations will be generally adopted. We are fully aware that our recommendations will not do away with all the grievances and disadvantages, under which the flour export trade has been laboring, but we consider this an initiatory step towards a full understanding what the duties and rights are as well of the American shipper as of the European receiver.

We have the pleasure to announce that we will issue Cawker's American Flour Mill, and Mill Furnishers Directory for 1886 about Feb. 1, 1886. Price, \$10 per copy. We desire all who wish copies to send in their orders now, as only a very limited edition will be printed. The work will be issued in first-class style and the publisher will use his best endeavors to make it perfect. All communications in reference to it should be addressed to E. Harrison Cawker, publisher UNITED STATES MILLER, Milwaukee, Wis.

THE Roller Mill and the Milling World, of Buffalo, appear to be all broke up about milling newspaper matters in Milwaukee. We cannot speak for others, but we desire to say for the UNITED STATES MILLER that it does not now and never has considered the subject of consolidation with any other paper. It is a plain outspoken journal, pays its way, minds its own business, and to the best of its ability serves its readers and advertising patrons. Our patrons appear to be satisfied with the course taken by the UNITED STATES MILLER.

GIBSON'S GRADUAL REDUCTION MILLING.

We have received from the publisher, Mr. C. M. Palmer, of Minneapolis, Minn., a copy of the above entitled work. It is a handsome volume of 430 pages, and contains numerous diagrams. The author says: "This book is intended to be one which has distinctively to do with milling and milling methods, but not with milling machinery." This idea seems to be well carried out and we have no hesitation in saying that there is to-day no book in the English language which is of such practical importance to the operative miller as the one above named.

The price of this book is \$3.00 per copy, sent postpaid to any address in the world, on receipt of price. See advertisement on another page.

ALL persons connected in any way with the milling industry will find it a blessing to have a copy of the UNITED STATES MILLER sent regularly to their address. We will send a sample copy of it free to all in the trade who may apply to us for a copy. You can examine it carefully, read our premium and book lists, and we believe that you will after a fair inspection feel that it is to your interest to subscribe. It only costs with premium, one dollar per year. The UNITED STATES MILLER has been published nearly ten years, and the experience and knowledge gained by its publisher in that time is a sufficient guarantee of a valuable paper.

MILL OWNERS should not fail to answer our inquiries on another page concerning capacity of mill, power used, etc., at once. It is to your interest to do so. Don't be behind others in making replies. We have taken the pains and expense to fix up a blank in the paper, so that you will have but little trouble to comply with our request. No mill owner who considers himself of any importance should

REGULATIONS.

LIABILITY FOR DELAYS IN TRANSIT.

In case of c. i. f. sales, the miller or shipper having contracted the freight with a regular line, having regular advertised sailings, and having delivered the flour to the forwarding agent within the contract time, shall be free from all liability arising from delay in transit.

INSURANCE.

Insurance on flour sold on c. i. f. terms to be not less than 10 per cent. above the net invoice value. Any marine loss on c. i. f. sales will act as a release to the seller on that contract, or so much of it as is included in the shipment to which the loss occurs, and the seller shall not be obliged to replace any of said shipment by reason of the sale being made on c. i. f. terms.

Insurance on consignments shall be not less than 10 per cent. in excess of draft or bill of exchange against the same.

Insurance money collected from marine loss on consignment shall pay:

1. The draft against the consignment.
2. A reasonable commission, not to exceed 1½ per cent., for the consignee.
3. The balance shall belong and revert to the consignor.

CLAIMS ARISING FROM INFERIOR QUALITY.

If a flour shipment is not up in quality to the type sample, but comes near enough to it, so as to be considered a "fair tender," the purchaser is obliged to accept the shipment at purchase price less the actual difference in quality.

Flour consigned for sale when once sold by the consignee and delivered to the buyer, must release the shipper from further liability as to quality, condition or price. The custom now prevailing in some European ports of allowing purchasers to return flour on various pretexts, more or less time after delivery, is unjust to the shipper and contrary to sound business principles.

SALES

Of consigned flour, made in regular form and so reported to the consignor, shall be final. We shall not recognize the arbitrary right exercised in some ports of the purchaser releasing himself at his own convenience of a bargain on "next market day," or at any other time.

BILLS OF LADING

To ports which have no regular steamship connection with the United States, shall be considered through bills if made to principal ports with the reshipment clause inserted.

The above regulations will be printed in convenient form on slips, to be pasted into the cable codes of the exporting miller as well as his European correspondents, with the understanding that all future business must be done on the basis of these additions to the code.

The secretary of the Association, S. H. Seamans, Milwaukee, Wis., will furnish these slips upon application to the members of the Association.

Sub-Executive Committee Millers' National Association.

C. H. SEYBT, Chairman.

S. H. SEAMANS, Secretary.

SPECIAL BUSINESS NOTICES

BOLTING CLOTH !

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address, CASE MANUF'G CO. Office and Factory: Fifth St., North of Waughen, Columbus, Ohio.

GRANT PICTURES

BUFFORD'S INDIA TINT ART PROOFS.—This is the only picture of the renowned general and statesman which has received the indorsement of the Grant family; and nearly every citizen of the United States wants the largest and best likeness yet produced of his country's most illustrious defender, on the best plate paper—21x28 inches. Price only \$1, postpaid, with a copy of the United States Miller for one year, providing your order is received with special request for the picture, on or before Oct. 10, 1885. The regular retail price of this picture ALONE is \$1, post-paid to any address.

AN INTERNATIONAL MILLING EXPOSITION IN GERMANY.

An international exhibition of machinery employed in flouring, oil and saw mills, and in baking, is to be held at the city of Augsburg, in Bavaria, under the auspices of the Millers' Association of Germany, commencing July 11, and closing July 25, next year. The annual meeting of the association occurs at the same place. The committee in charge invites manufacturers throughout the world to participate in the exhibition, and will extend the time for receiving applications from American exhibitors to the end of October. The exhibits will be classified as follows: (1) Motive powers, wind mills, water wheels, turbines, engines, boilers, gas and caloric motors, systems of transmissions of power. (2) Auxiliary machinery, grain cleaning machines, reduction mills, stone mills, stones and rolls, cylinders, bolting machinery, purifiers, aspirators, wheat heaters, mulay, circular, band and veneer saws, kneading machinery, etc. (3) Tools and apparatus, stone dressing machines and tools, elevators, hoists, scales, wagons and carts, ovens, illuminating and safety appliances. (4) Furnishings, parts of machinery, belting, elevator cups, bags, bolt-cloths, saw blades, etc., etc. A jury will make awards. All communications should be addressed: An das Comite der Internationalen Muellerel Ausstellung in Augsburg, Germany.

NO RIGHT TO STEAL AWAY YOUR EMPLOYER'S BUSINESS.—In Van Wyck vs. Horowitz, New York Supreme Court, special term, 29 Daily Reg., 805, the question as to the right of a party to use another name upon his business cards, etc., by saying "late with," etc., is discussed. In this case the defendant, who had been employed by plaintiff as a

workman upon jewelry and in the repair of watches, set up in a business similar to that kept by plaintiff, and put upon his cards and upon a sign in his store, "Late with James P. Van Wyck." This use of his name the plaintiff sought to restrain, and the court granted a motion to continue an injunction, saying: The statement of the case evokes instant condemnation from the hearer, and an analysis of the thoughts which produce such instantaneous conclusions will show that it rests upon sound legal principles as well as upon the conscience of the hearer. The defendant has no right of property in the name nor in the reputation of that business which he seeks to use with his own name and business so as to give his own prominence at the expense of the other. If the defendant had been a stove blackener, or hostler, or an errand boy in the employ of the plaintiff, or a clerk discharged for want of fidelity or competency, he could with just as much truth advertise himself as "late with James P. Van Wyck." The extreme supposed cases are put to illustrate the danger of the counsel's position. It cannot be that a man who has sustained any position toward or had any employment for a well-known individual, that thereby he obtains the right to use that name in connection with his own, so as to advertise himself and his business at the expense of his former patron and employer, and to do it in a manner which is likely to, and often must, deceive as to the nature of the relations to him.

The motion to continue the injunction must be granted, because—

First—The defendant is, without authority, using the plaintiff's name, which is the use of another's property for his own benefit and to the injury of its owner.

Second—He is attempting to transfer to himself a part of the reputation of the store and business of the plaintiff, which also belong to the plaintiff as really and as truly as his name or his personal property of which he is the actual owner.

Third—The mode and manner of the use by the defendant of the name of the plaintiff are such as oftentimes to deceive, and because liable to deceive, and thus benefit the defendant at the expense of the plaintiff, such use must be held to be unlawful.

A DULL MARKET.—"How are sales today?" was asked of a broker Tuesday.

"Sails!" replied the preoccupied one, "well the Puritan has got a hole torn right through her by the Genesta's bowsprit."

"No, not that, but your board—"

"Bored! Should think I ought to be; stocks flat as a shingle and streets deserted."

"They are a little off, eh?"

"Off! Yes, both my partners off all day to the races. Genesta's bowsprit off, bets all off. Of course everything is off, and no offers."

"I know the market is a little off, but good judges say—"

"Oh, yes, I know they say it was a foul, and the Puritan should be counted out, but there isn't going to be any corner in that market—you can make your bids and be sure the stock will be active—"

"What stocks do you refer to?"

"Why, yacht stocks, and it requires wind and newspapers to keep that up as well as the other fancies; so sail in, old man, sail in."—Boston Bulletin.

SELECTING WHEAT FOR MILLING PURPOSES.

The making of good flour is almost wholly dependent on the quality and condition of the stock used, no matter how good the mill or how skillful the miller. Operatives are, in many instances, unjustly censured for the poor quality of their flour, when the trouble is attributable to the wheat furnished, its character and its condition.

If the stock provided is Clawson and soft Fultz wheats, and the product goes into market in competition with flour made from New-York Premium and Long Berry Amber, the case is hopeless, for the best portion of the former, though selected and taken off by the best-known system of milling, will not compete favorably, for bread-making, with the entire flour product of the latter.

When the wheat furnished is duly understood and all competing flours are made from similar stock, there is then reason for holding the miller responsible for irregularities, except in cases where there is no competent judge stationed at the wheat door, and when the miller is so occupied with "tending mill" or roust-a-bouting, that he has no time to devote to the wheat as it is taken in. In this way much stock is allowed to enter the mill, that is utterly unfit to go into first-class flour. The bad effect of poorly-selected stock is not confined alone to the quality of flour, but has to do with the amount of flour produced from a bushel of wheat, the per cent. of grades, and consequently of profits.

Viewing the manufacture of flour from any standpoint, it would be well to adopt the following statement as a maxim: Among the most important qualifications of a practical miller are, knowledge of wheats, and a tenacity of purpose in grinding only when the stock is properly conditioned. *It requires sound wheat to make sound flour.*

You may scour sprouted wheat until the sprouts are taken off, bloated wheat until the germs are taken out, smutty wheat until all smell of smut disappears, heated wheat until the sour odor is no longer noticeable on the surface of the berry, and musty wheat until the bran is taken off. The wheat may be washed and exposed to the action of the sun's rays, kilndried and doctored in various ways, and by these cleansing processes greatly improved, but the damaged elements are not restored to original strength or proper condition for food.

As you value the reputation of your flour, beware of this kind of stock. If you are compelled to handle damaged wheat, it should be kept separate, milled separate, and the flour sold on its merits.

Irregular wheat, uneven in weight because of rust, mildew, winter killing, flies, etc., should be graded by atmospheric separation, the diseased portion ground by itself, and the flour-product sold on its merits.

Inquire among successful millers as to the importance of this, and you will find that it is regarded as a secret of success.

And while all have not equal facilities for following this principle strictly, yet all have sufficient opportunities to enable them to protect the reputation of their flour, and to make them successful manufacturers.

We have undertaken to present the fundamental principles of milling in this way, having a due appreciation of the shortness of life and its contingencies. Providence

permitting they will be continued to the end. Should the cholera, poorhouse or insane asylum gather us in before the twenty-seventh letter of the alphabet is reached, they will perhaps be finished by some more competent person. Yet we will possess the happy consciousness of having done what we could while our lamp flickered.—From *The Roller Mill*, for September.

THE PENALTY OF IMPROVIDENCE.

In a recent conversation with an excellent gentlemen, who is superintendent of one of the finest manufacturing establishments in the world, he said to us that something must be done, or there would be revolution and blood. "Why," said he, with great earnestness, "we are unable to supply some of our best mechanics with work—men who have been with us for a long time. They are actually in want, and something must be done, or there would be revolution and blood." Now let us calmly look at this sad condition of affairs squarely in the face. Here are a number of "good mechanics" out of work and in need. They have had work for years at from \$2.50 to \$3.50 per day. During these years the firms have made money and saved it—laid it up for such a time as the present—and are, therefore, by this providence, able to weather the storm—span the hiatus. If these mechanics had done the same thing they would now have enough to supply them, and they could rest comfortably now, instead of riding on the jagged and ragged edge of want. "But," says the anti-monopolist and equalizer, "the factory made more, and labor did not get its share of the result of the combination of work and money." We do not know of any rule of equity to decide this question by; but this we know—that this very factory offered to share profits with their employes, and they declined, preferring a stipulated amount for their services. Here are men reported in want who have received from seven to ten hundred dollars a year, and never laid up one dollar of it—who have provided no homes for their families to live in, and have no bank account against a rainy day. This is a contingency against which no government can provide. There are but two powers in this or the other world that can do it. One is the man himself, by laying by a part of his income for such emergencies as sickness and being out of employment. God could do it, but he won't. Savings banks, life and accident insurance, investments in homes are the remedy. The capitalist insures his life to secure competence for his family in case of his death, and his factory to enable him to rebuild in case of fire. The workman should insure life and against accident, save money, buy a home, and be able to hail hard times as a time to rest.—*Carriage Monthly.*

THE WORLD'S FOOD SUPPLY.

Editor of the New York Herald.—Recent articles in some of the New York papers on the wheat situation contain some statements which are apt to mislead, and which in view of the facts and their importance to the wheat growers and merchants of this country (ignoring speculators), ought not to remain uncontradicted. Last year both farmers and merchants suffered from overproduction and consequent low prices—the latter being less than cost. This year a different state of affairs

exists, and it is due to our interests as a producing nation that they should be widely known. They indicate an improvement in values which may partly offset last year's losses. I place at your disposal the best information which my correspondence and cable advices, as well as reliable home and foreign statistics, have furnished me. From these I am satisfied that the actual situation is correctly represented by the following figures:

	Bushels.
Estimated crop of wheat in the U. S., 1885..	387,000,000
Estimated old wheat from crop of 1884.....	90,000,000

Total supp.y..... 477,000,000

Deduct—

Pacific coast stock carried over...15,000,000

California new crop..... 25,000,000

Oregon new crop, overestimated..16,000,000

Washington Territory..... 4,000,000

Total..... 80,000,000

Leaving a supply east of Rocky Mountains. 387,000,000

This Pacific coast wheat cannot come this

way, and therefore must be exported to

the extent of..... 45,000,000

Required for consumption and seed..... 15,000,000

We require on this crop, east of the Rocky Mountains:

	Bushels.
First, for consumption.....	300,000,000
Second, for seed	50,000,000
Third, for reserve, say.....	80,000,000

Total..... 380,000,000

Leaving for export from Atlantic ports.... 7,000,000

Add exports from Pacific ports..... 45,000,000

Or a total in flour and wheat of..... 52,000,000

So far as the supplies from other wheat growing countries are concerned at present the condition appears to be this:

	Bushels.
England's crop this year is.....	70,000,000
Or short from last year.....	10,000,000
France, deficiency on this year's crop	39,000,000
Italy, short eighteen per cent., or.....	27,000,000
Russia, short on an average crop at least....	80,000,000
India, now shipping on her last crop, harvested in March and April, estimated at....	24,000,000
Australia, shipping on her crop harvested in April, 850,000 tons, or say.....	14,000,000

There is no increase or decrease from other countries worth mentioning beyond the fact that Germany, Austria and Hungary are very short in their rye crops and not an average in their wheat crops. Russia is also deficient in her rye crop. The four above mentioned consume rye mainly for bread, and if this crop is short the result must be a greater demand for wheat. In Great Britain, the potato crop—the principal substitute for bread—is small and of poor quality. In view of this condition of things, having carried last year's surplus so long, it would seem wise to hold it longer, until demand overtakes supply, which is inevitable.

E. R. LIVERMORE.

MILLER AND DIAGRAM.

Some controversy is going on as to the necessary qualifications of a miller to be able to diagram a mill. We think there are many successful expert millers who cannot, and perhaps could hardly be educated to be able to properly draw a diagram, though the plan be ever so firmly fixed in the mind; but such cases are undoubtedly the exception. Every miller superintending a mill of any size should have a diagram on paper, showing the location of each machine and the flow of material. It will be a great help to him, and any changes can be more intelligently made. If not able to draw, let him learn to understand such drawings. It would be a great advantage to be able to draft such plans. To be

successful mechanic or inventor nowadays it is necessary to be a draughtsman, and a successful, progressive miller is both a mechanic and an inventor. Many of our large and most successful mills are thus provided with such talent, and the more attention and study the managers of small mills give to these acquirements the better for themselves. When gradual reduction milling was first introduced and its details not yet perfected, the first plan or diagram upon which the mill was built was seldom adhered to very long, but it was enlarged and improved upon by progressive millers. Mill builders are quick to avail themselves of such experience, until now it is an easy matter to get a mill planned and built so as to be complete, and require no material change. It still remains a fact that, though we have a complete mill, we can better understand and manage it by being familiar with its diagram on paper.—*Millers' Review.*

ITEMS OF INTEREST.

TIDE MILLS.—A correspondent at Norwalk, Conn., writes that there are four tide mills within fifteen miles of there, and that in dry times this unfailing source of power is greatly appreciated by the farmers, long lines of wagons being seen waiting to have the grist ground. Two of these mills are said to have single-acting turbine wheels, with a simple flap gate to admit water to the pond. Our correspondent suggests that there are, probably, many more tide mills in use in the country than is generally supposed.

The Pike's Peak Railway, which is expected to be in operation this year, will be the most notable piece of track in the world. It will mount 2,000 feet higher than the Lima and Oroya Railway in Peru. It is now in operation to a point over 12,000 feet above the sea-level. The entire thirty miles of its length will be a succession of complicated curves and grades, with no piece of straight track longer than 200 feet.

MAGNESIA IN BRICK.—The beauty and the finish of the red pressed brick has led, as every one knows, to its very extensive employment of late, in the construction of large buildings. So comparatively recent is its use that no sufficient test can yet be said to have been made of its merits. A serious objection to it has, however, been entered already. In many buildings exposure to the atmosphere has slowly resulted in the formation of a white crust or deposit upon the face of the brick, thus marring the symmetry and beauty of the entire structure. This is said to be due to the presence in the brick, or to the extraction from it, of a form of magnesia.

Now if this be true, it is important to inquire: First, in what particular form the magnesium is contained in the brick; second, what elements in the atmosphere effect the change which takes place; third, what is the change which occurs, and fourth, how can its occurrence be hindered. To these questions the following are suggested as probably correct answers. (1). Magnesite, or carbonate of magnesia, is the form in which this mineral is usually found in the clays used for brick-making. (2). Heat and cold both have a decided effect upon this constituent; the heat by evaporating what small quantity of water of crystallization it may contain and precipitating a white semi-amorphous pow-

der; the cold by causing the deposit of the magnesium carbonate in large crystals which upon exposure to the atmosphere become opaque. (3). The change is practically a dehydration of the carbonate of magnesia with the formation of a white salt upon the exposed surface of the brick. (4). The means of averting its occurrence must largely be a matter of experiment. Considering that the presence of the carbonate of magnesia is not essential—is, in fact, detrimental to the red color of the brick, and presupposing that the process would not unfortunately affect other constituents, it would occur to the chemist that the occasional treatment of the exposed surface with a solution of citric acid might arrest the process and dispose of the already formed deposit. The Architect offers the suggestion for all it is worth.—N. W. Architect.

REDUCTION IN THE TRANSFER OF GRAIN.

—Shippers have long felt that the present charges by elevators in Chicago, Buffalo and other cities are exorbitant. Various devices have been adopted in order to dispense with the elevators. The plan of transferring grain on the track was tried, but found unsatisfactory to both parties. An improvement in this method is described by the Chicago Tribune. A huge weighing hopper is attached to a car which goes from place to place. By means of this a carload of grain is taken up, weighed accurately, and transferred to another car in about ten minutes, and at a cost, it is said, of only one-tenth of a cent a bushel. Another means by which it is hoped to reduce the cost is by building floating elevators, in which many tons of grain can be weighed at a time. One is now being constructed at Cleveland, and it is proposed to build similar ones for other cities. All these movements point to a determined war on the elevator rates. A still more significant fact is the announcement that Williams & Co., of Buffalo, are prepared to handle grain in their new elevator at 1c. less per bushel than the association. Attempts are being made by the old syndicate to boycott this "outside concern" by warning all who ship to this firm never to expect to have any grain received by the regular elevators. These threats, however, will not prevent consignors from availing themselves of the reduction. Cheaper transfer is demanded, and this step toward it will certainly be encouraged.—*Bradstreets.*

THE AVERAGE OF FIRE LOSSES.—Fire insurance companies in computing the amount of premium for which they may profitably "write a risk," base their figures upon their past experience, keeping a record of classes and causes, together with losses upon each class, etc. These statistics are interesting, and should have extensive publication to the end that policy-holders may know the relative position their own particular risk takes with the many others. We venture the assertion that a miller who has lived in one community all his life without ever having seen a mill destroyed by fire, would discredit the statement that an average of one flour mill representing a cost of \$12,000, is consumed by fire every working day, yet such is the fact, or, at least, that is the average given in the statistics for 1884. Dwelling houses burn at the rate of one an hour with an average loss of \$1,396. Barns and stables fifty per week. Country stores,

three per day, with a loss of \$110,000 per week. Ten hotels burn weekly, with a loss per year of \$4,400,000. Every other day a lumber yard goes up in smoke, each representing \$20,000. Forty-four cotton factories, the loss in each case being 28,000; forty-three woolen mills, at \$25,000 each; and forty-two chemical works, at 27,000 each, were destroyed by fire last year. Forty-two boot and shoe factories were consumed, the loss being \$17,500 each. Theaters were lapped up by the flames at the rate of five per month, average loss, \$19,000. Only about half as many court houses were destroyed, the cost of each being about \$20,000. Georgia was the most unfortunate State, the aggregate losses being equal to the cost of maintaining the state government and paying interest on the state debt. Thirty per cent. of the losses last year were caused by incendiarism, ten per cent. by defective flues, and the balance by spontaneous combustion, hot pipes, exploding lamps and lanterns, lightning, matches, cigar stubs, etc.

The business in "futures" appears to be spreading rapidly. The latest departure in this respect is reported from Leith, where Messrs. A. & R. Tod, one of the largest firms of millers in the Kingdom, have issued a circular to their customers, saying that the very great changes in the wheat and flour trade during the last few years necessitate a change in mode of selling flour. They therefore propose to sell flour forward up to seven months, giving daily the quotations for each month, for each of their three qualities of flour, the offers being subject to return of post. They also propose to use plain sacks, and weigh gross; if named sacks and net weight is required the price to be 1s more. The discount, which is 9d per sack within two weeks, and 8d within four weeks, is reckoned from day of delivery. This is a new departure indeed, and not one of the best for small millers, who will find it difficult to go and do likewise.—*The Millers' Gazette* (London).

From Chicago to San Francisco.

The Chicago, Milwaukee & St. Paul Railway Company has sent out a little pamphlet of eight pages, which describes the trip from Chicago to San Francisco over its short line and connections, the Union Pacific Railway and the Central Pacific Railroad. The little book mentions many of the numerous important places along this route, and it indicates briefly and in a satisfactory manner what the accommodations and attractions for the traveler are. A running colored bird's-eye view map at the tops of the pages shows the comparative altitude of the many cities and points of interest. The distance from Chicago to San Francisco by this route is 2855 miles, and the time consumed in making the trip four and one-half days. In going from Chicago, about 600 feet above the sea level, one goes right up over the Rocky and Sierra Nevada mountains at a height of 8000 feet, and down to San Francisco, less than 1000 feet. By this route through Northern Illinois and Central Iowa, the traveler passes Des Moines, Omaha, Cheyenne, Denver, Great Salt Lake, Carson City and Sacramento. Everything in the way of checking baggage, providing berths, eating, and other accommodations, is looked after with the most scrupulous care, the aim being first and always to secure the comfort of the passengers. Persons going from all parts of the East to the far West would do well to consider the Chicago, Milwaukee & St. Paul route, concerning which they may obtain minute information by addressing A. V. H. Carpenter, General Passenger Agent, Milwaukee, Wis.

[Written for the October Number of the UNITED STATES MILLER.]

FREE TRADE AND THE REBELLION.

By John W. Hinton, of Milwaukee.

The purport of the following paper is to expose and try to remove what the writer deems an erroneous impression, largely prevailing, to this day, that slavery was the principal, if not the sole cause of the Southern rebellion against the American Union.

Had there been no slavery in the Southern States, it is readily admitted that there would probably have been no rebellion. Yet the writer feels confident that he can make it plain, to any unprejudiced person, that the chief and only distinctively expressed cause and avowed purpose was the determination of the Southern Confederacy to have free trade with England.

Of the logical results, of the facts herein cited and the arguments adduced, the reader will be his own judge.

All the writer asks, is a careful and impartial perusal of the statements herewith submitted, and for the first time published.

(Extract from a lecture delivered before the Wisconsin legislature, before the students of Grinnell College, Iowa, at Lake Forest, Ills., etc., by John W. Hinton, proprietor of the Northwestern Tariff Bureau, Milwaukee, Wis.)

Gentlemen—Mr. Bright was very anxious to show to his countrymen immediately after the Southern rebellion broke out, that the tariff system of the North was not the principal cause of secession, or that import duties on foreign-made goods had aroused the hostility of the South. Dec. 4, 1861, he said:

"There is another cause which is sometimes in England assigned for this great misfortune, which is, the protective theories in operation in the Union, and the maintenance of a high tariff. It happens with regard to that, unfortunately, that no American, certainly no one I ever met with, attributed the disasters of the Union to that cause. It is an argument made use of by ignorant Englishmen, but never by informed Americans."

* * * "Occasionally, there can be no doubt, their tariff was higher than was thought just, or reasonable, or necessary by some of the States of the South. But the first act of the United States which levies duties upon imports, passed immediately after the Union was formed, recites that 'It is necessary for the encouragement and protection of manufacturers' to levy the duties which follow, and during the war with England from 1812 to 1815, the people of the United States had to pay for all the articles they bought from Europe many times over the natural cost of those articles, on account of the interruption to the traffic by the English nation. When the war was over, it was felt by everybody desirable that they should encourage manufacturers in their own country."

Now for the facts. As far back as 1808 South Carolina favored protection; one of her laws then read in its preamble:

"Whereas, the establishment and encouragement of domestic manufactures is conducive to the interests of a state, by adding new incentives to industry, and as being the means of disposing to advantage the surplus productions of the agriculturist; and, whereas, in the present unexampled state of the world, their establishment in our country is not only expedient but politic, in rendering us independent of foreign nations."

Gentlemen—Please remember that John C. Calhoun was then a strong Protectionist, but afterwards, when realizing the increasing power and prosperity of the North by the tariff, he turned free-trader and became the father of secessionists. I will now give some

facts which, I am confident, will be of interest to you, young gentlemen, and, perhaps, instructive to many of you older gentlemen.

In December, 1812, John C. Calhoun, Henry Clay, Capt. Stewart, of the "Constitution," with many other Republicans, boarded at Mrs. Bushby's in Washington. Capt. Stewart, then 34 years of age, said to Calhoun, 30 years old: "I am puzzled to account for the close alliance existing between you Southern planters and the Northern Democrats," continuing:

"You, in the South and Southwest, are decidedly the aristocratic portion of this Union; you are so in holding persons in perpetuity in slavery; you are so in every domestic quality, so in every habit in your lives, living and actions, so in habits, customs, intercourse and manners; you neither work with your hands, heads nor any machinery, but live and have your living, not in accordance with the will of your Creator, but by the sweat of slavery, and yet you assume all the attributes, professions and advantages of Democracy."

Young Gentlemen—Mr. Calhoun's reply merits close attention:

"I see you speak through the head of a young statesman and from the heart of a patriot, but you lose sight of the politician and the sectional policy of the people. I admit your conclusions in respect to us Southerns. That we are essentially aristocratic I cannot deny; but we can and do yield much to Democracy. This is our sectional policy; we are from necessity thrown upon and solemnly wedded to that party, however it may occasionally clash with our feelings, for the conservation of our interests. It is through our affiliation with that party in the Middle and Western States that we hold power; but when we cease thus to control this nation through a disjointed Democracy, or any material obstacle in that party which shall tend to throw us out of that rule or control, we shall then resort to the dissolution of the Union. The compromises in the constitution, under the circumstances, were sufficient for our fathers, but under the altered condition of our country from that period, leave to the South no resource but dissolution."

The opposition of the South to the tariff was still more plain in 1824. Again Calhoun speaks:

"We must prevent the increase of manufactures, force the surplus labor into agriculture, promote the cultivation of our improved Western lands, until provisions are so multiplied and reduced in price that the slave can be fed so cheaply as to enable us to grow our sugar at three cents a pound."

Now listen to Henry Clay's comment on this:

"The gentleman would have us abstain from adopting a policy called for by the interests of the greater and freer part of the population. But is that reasonable? Can it be expected that the interests of the greater part should be made to bend to the condition of the servile part of our population? That in effect would be to make us the slaves of slaves."

I now quote from Calhoun's works, vol. 2, p. 396:

"This disastrous event (the passage of the tariff bill of 1828) opened our eyes (I mean myself and those immediately connected with me) as to the full extent of the danger and oppression of the protective system, and the hazard of failing to effect the reform intended through the election of Gen. Jackson. With these disclosures it became necessary to seek some other ultimate, but more certain measure of protection." * * * "In the fall of 1828, but a few months after the passage of the tariff act of that year, and at the meeting of the Legislature of the State, at the same period, a paper known as the *South Carolina Exposition* was reported to that body, containing a full development, as well on the constitutional point as on the operation of the protective system, preparatory to a state of things which might eventually render the

action of the State necessary in order to protect her rights and interest, and to stay a course of policy which, we believed, would, if not arrested, prove destructive of liberty and the constitution."

James Parton, a free-trader, who had such a high opinion of the benefits to the country of the largest iron manufacturing city in it, as to designate Pittsburg as "hell with the lid off," summarizes the points of the South Carolina Exposition thus:

First—Every duty imposed for protection is a violation of the constitution which empowers Congress to impose taxes for revenue only.

Second—The whole burden of the protective system is borne by agriculture and commerce.

Third—The whole of the advantages of protection accrue to the manufacturing States.

Fourth—In other words, the South, the Southwest and two or three commercial cities support the government and pour a stream of treasure into the coffers of manufacturers.

Fifth—The result must soon be that the people of South Carolina will have either to abandon the culture of rice and cotton, and to remove to some other country, or to become a manufacturing community, which would only be ruin in another form.

Gentlemen—Against these surmises of impending evils of protection Calhoun held to but one remedy, "nullification"; latterly the South had but one, "secession" or rebellion. From 1812 to 1828, when secession was threatened, Jackson's avowal that, if it was attempted, "by the Eternal he would hang Calhoun higher than Haman," alone prevented the attempt. This anti-tariff feeling never died out among Southern leaders. Immediately before the rebellion it burst out anew. In 1830, Dr. Elliott, president of the Planters' College, Mississippi, published by subscription "Cotton Is King," to embody the views of the Southern leaders of secession. On the tariff question he said:

"The opposition to a protective tariff by the South arose from two causes: First, to secure the foreign market for its cotton; second, to obtain an abundance of supplies at a cheap rate. Let a system of free trade be adopted, the South would constitute the principal market for, and the fertile lands of the North supply, the cheap food demanded for its slaves."

* * * * * "If they could establish free trade, it would secure the American market to foreign manufacturers, secure the foreign markets for their leading staples, force Northern men into agriculture, multiply the growth and decrease the price of provisions, feed and clothe their slaves at lower rates."

* * * * * "There was a fusion of interests between the planters of the United States and the British manufacturers, and to the planters the copartnership has been eminently advantageous."

In 1824, Henry Clay was well aware of the compact between the South and the British manufacturers. He said in the United States Senate:

"The existing state of things presents a sort of tacit compact between the cotton-grower and the British manufacturer, the stipulations of which are, on the part of the cotton-grower, that the whole of the United States, the other portions as well as the cotton-growing, shall remain open and unrestricted in the consumption of British manufacturers; and on the part of the British manufacturer, that in consideration thereof he will continue to purchase the cotton of the South."

Gentlemen—Let us turn to Mr. Bright again. In his speech, Feb. 8, 1863, before quoted, Mr. Bright said:

"Mr. Mann, an eminent person in the State of Georgia, says: 'With the failure of the cotton, England fails. Stop her supply of Southern slave-grown cotton, and her factories stop, her commerce stops, the healthful, normal circulation of her life blood stops.' * * * In one year from the stoppage of England's supply of Southern slave-grown cotton, the Chartists would be in all her streets and fields, revolution would be rampant throughout the island, and nothing that is would exist.' * * * Why, sirs, British lords hold their lands, British bishops hold their revenues, Victoria holds her sceptre, by the grace of cotton as surely as by the grace of God. Senator Wigfall says, 'If we stop the supply of cotton for one week, England would be starving. Queen Victoria's crown would not stand on her head one week if the supply of cotton was stopped.' Mr. Stephens, the president of the Southern Confederacy, says, 'There will be revolution in Europe, there will be starvation there. Our cotton is the element that will do it.'"

Speaking at the secession convention in 1860, held in South Carolina, Mr. Rhett averred that secession was an event of the day; that the storm had been gathering force for years, and emphatically asked: "Have the labors of Calhoun been forgotten, when he declared, a few years ago, for the secession of South Carolina, and that secession would be the consummation of their liberties?"

Gentlemen—You will please observe that Mr. Bright shrewdly omits allusion to the free trade clause in the Confederate constitution. Sec. 8, Art. 1, reads:

"No bounties shall be granted from the treasury, nor shall any duties or taxes on importations from foreign nations be laid to promote or foster any branch of industry."

The determination of the Confederacy to have free trade is proven by their embodiment of that clause in their constitution. I think I have shown you that the South meant to dissolve the Union rather than submit to a tariff, which encouraged manufacturers and protected free labor, first engendered in 1812, strengthened in 1828-30, was never abandoned. It culminated in rebellion in 1861, and I may justly add that the "compact between the cotton-growers and the British manufacturers," as stated by Henry Clay, and the "fusion of interests between the planters of the United States and the British manufacturers," as shown by Dr. Elliott in his "Cotton Is King," was the chief cause of the rebellion.

Now let me give you another proof, as it seems to me unanswerable in its plainness:

May 4, 1861. The Southern commissioners, Yancy, Mann and Rust, who were in London, assured Lord John Russell, the British premier, "that they had not seceded to preserve slavery, but that they might have free trade with England, and that two-thirds of the whole exports of the United States were furnished by the South, and that if England would recognize the Confederacy, British goods would be admitted duty free."

Very early in the rebellion Mr. Gladstone said at New Castle, England: "There was no doubt that Mr. Jefferson Davis had made a nation of the South."

"The announcement caused great sensation," said the London Times Reporter.

On the next day Mr. Gladstone said: "We may anticipate with certainty the success of the Southern states, so far as regards their separation from the North. I cannot but believe that that event is as certain as any event, yet future and contingent." Loud cheers greeted the remarks, which were renewed when it was asserted: "The United States was a mere Yankee invention, a thing of the past, which no longer had an existence in fact."

The Marquis of Salisbury was loudly applauded in the House of Commons when he said:

"That the people of the Southern states were the natural allies of England, as great producers of the articles we need and great consumers of the articles we supplied. The North, on the other hand, kept an opposition shop, in the same department as ourselves."

Napoleon Buonaparte was right when he termed the English "a nation of shopkeepers," while our member of congress was correct in saying:

"There is the entire Gospel from Genesis to Revelations of Great Britain; you fill their bellies and buy their wares, and they are content."

I cannot forbear quoting here, for the consideration of you young gentlemen, an extract from William H. Seward's speech, at Rochester, N. Y., Oct. 25, 1858:

"Either the cotton and rice fields of South Carolina, and the sugar plantations of Louisiana, will ultimately be tilled by free labor, and Charleston and New Orleans become marts for legitimate merchandise alone, or else the rye fields and wheat fields of Massachusetts and New York must again be surrendered by their farmers to slave culture and to the production of slaves, and Boston and New York become once more markets for trade in the bodies and souls of men."

When we remember that Bob Toombs declared he would could call his slave roll at the base of Bunker Hill, we cannot help thinking of the past.

And now, gentlemen, long after the rebellion was over, we find here and there still further evidence, and pardon me if I say what appears to me conclusive evidence, of the theory I am trying to illustrate to you, practically with facts. I must not extend these remarks much longer, lest I weary your patience, so will give but one more extract. It is from General Richard Taylor, of Louisiana, distinguished Confederate general. He says in his "Review of the War":

"We made two great mistakes. Had we avoided them we should have conquered you. The first was that we did not substantially destroy the protective features of the tariff in the winter of '57-'58 by an act which provided a rapid sliding scale to free trade. As a democratic measure we could have passed such a law and held it tight on you till it closed the furnaces, workshops, woolen and cotton mills, and steel and bar iron works of the whole North and West, and scattered your workmen over the prairies and territories. When the war was ready for you, you would not have been ready for the war. You could not have armed and equipped and put in the field a large army, nor built a navy. You would have been without supplies, machinery and workmen, and you would have been without money and credit. Our second mistake was in withdrawing our senators and representatives from your congress. How the h—ll we blundered in these two respects I cannot understand, except upon the hypothesis of an Overruling Providence."

As a conclusion I append here my remarks bearing upon this subject as delivered before the "Wisconsin Grange," at Madison, Wis., Dec. 12, 1888.

"My friends, to change the subject a little for a moment or so, I have been requested to say something about soldiers and their interest in the protection of American manufactures and American labor. It has been tauntingly said, outside of this room, that I dare not even attempt to show how our soldiers ever were, or could be, interested in this great tariff question. I accept the challenge. * * *

"Now, as to soldiers and their interest in the tariff, I have to say that every maimed or mangled inmate of our National Homes, every empty sleeve North or South, every

grassy mound covering a Confederate dead, every monument that marks the sepulcher of our Northern patriot soldiers—the weeds upon their widows' brows, and every tear shed by their fatherless children, all, all attest the dreadful, terrible sacrifices that were made to the Moloch of free trade. * * *

"American soldiers need not to be told, they know full well, what a cruel and bloody record free trade has made; and they know, too, that its evil spirit is still smouldering above its holocaust of more than half a million of their slain comrades; and soldiers know, too, who it is that, at the present time, is trying so hard to revive that same destructive system that always has and will again, if enacted, send sorrow, and misery, and suffering into every mechanic's and laborer's home in this country, as free trade, or a close approach to it under a low tariff, has always done."

MILLING PATENTS.

The following list of patents relating to milling interests, granted by the U. S. Patent Office during the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin st., Milwaukee, Wis.

Issue of Sept. 1, 1885. No. 325,254—Packer for bran and other articles, S. T. Lockwood, Chicago, Ill.; No. 325,258—Centrifugal separator, A. H. Van Duzee, Leavenworth, Kan.; No. 325,327—Mill-stock feeder, G. Downie and A. F. Elsan, Marysville, Cal.; No. 325,521—Dust collector, J. M. Finch, Jackson, Mich.; No. 325,601—Roller mill, W. Griscom, Philadelphia, Pa.

Issue of Sept. 8, 1885. No. 325,713—Combined dust catcher and separator for middlings purifiers, J. R. Taylor and P. Lockwood, Marshall, Mich.; No. 325,744—Mill-stock feeder, G. Cottrell, San Francisco, Cal.; No. 325,833—Flour bolt, G. Halliday, Winnebago City, Minn.; No. 325,910—Grain scouring and cleaning machine, A. G. Deobold, Bloomington, Ill.

Issue of Sept. 15, 1885. No. 326,121—Roll for roller mills, J. W. Jackson, Denver, Col.; No. 326,175—Bolting chest, R. M. True, Cincinnati, Ohio; No. 326,176—Dust collector, P. Van Gelder, Bowery Bridge, County of York, England; No. 326,253—Crushing and grinding mill, W. C. Stiles, San Francisco, Cal.; No. 326,264—Grinding mill, W. H. Browne, Brooklyn, N. Y.; No. 326,447—Feeder for roller mills, L. Nolden and A. E. May, Beardstown, Ill.; No. 326,500—Centrifugal reel, B. Kniffler, Cleveland, O.; No. 326,612—Feeder for roller mills, J. Mooney, East Saginaw, Mich.; No. 326,583—Rice-cleaning machine, W. B. Vardell, Charleston, S. C.

Issue of Sept. 22, 1885. No. 326,853—Oatmeal machine, G. H. Cormack, Rockford, Ill.; No. 326,898—Flour dressing machine, W. H. Williams, Wauseon, O.; No. 326,901—Centrifugal reel, E. R. Draver, Stillwater, Minn.

AGRICULTURE IN THE SOUTH.

The Chicago *Current* gives figures to show that the South has at length awakened to the importance of diversifying its agricultural productions. The gain in the production of corn between 1875 and 1884 was, it is stated, 108,124,000 bushels, a gain of 83.6 per cent., or but 8 per cent. less than the gain in the rest of the Union. The increase in oats was 29,399,500 bushels, a gain of 85 per cent., that of the rest of the Union being 62 per cent. The increase in live stock was quite as striking. In 1875 the South produced 5,193,800 sheep; in 1885, 12,640,823. The increase in the number of hogs was 6,497,216; of cows the increase was from 2,709,200 to 3,612,678; of oxen and other cattle from 6,140,800 to 9,428,387. Summing up, we find that the total increase in live stock numbered 18,819,138 head. Texas takes most of the credit for the increase in sheep, but there was a marked increase in the number of hogs in all cotton states.

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ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Newark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year. SEE COMBINATION OFFER ON OTHER PAGES.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

TO ADVERTISERS.

Milwaukee, Wis., Oct. 1, 1885.

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,100 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, Publisher.

MANITOBA wheat is reported to have been seriously damaged by frost.

It is said that 1000 barrels of flour per day are made into pastry in Philadelphia bakeries.

WE have received from Messrs. Jas. Leffel & Co., of Springfield, O., a copy of their new wheel book, which is of much value to the users of water-power.

WE call the especial attention of our readers to the article in this number by John W. Hinton, on the subject of "Free Trade and The Rebellion." It is the first article on this subject that ever was published, and the question is treated in a most masterly and scholarly manner. We commend it to the careful perusal of all thinking men.

THE water was again let into the canal at Minneapolis, Sept. 21, and most of those mills which have been compelled to lie idle since July, started up again. It seems probable now that a very large amount of flour will be produced.

MILWAUKEE mills are now nearly all running again and a good deal of confidence seems to be felt by most of our millers in a fair business. Milwaukee mill furnishers are also driving business to full capacity. In fact, they have enjoyed a very good business throughout the year.

ANOTHER "long-felt want" has been filled, and Milwaukee all of a sudden finds the milling interest looked after by three milling journals, *The Miller & Manufacturer*, of Cincinnati having moved its headquarters to this city. We wish our new neighbors all the success they may deserve, but in the meantime our readers will bear in mind that the old, original and popular UNITED STATES MILLER may be found at the old stand, maintaining the "even tenor of its way." Subscription price only one dollar per year.

A SMALL host of millers, mill furnishing representatives and milling newspaper men from "all over" have been in Milwaukee during the past month and generally enjoyed themselves. We would like to say right here to intending visitors that Milwaukee is in all its glory from Sept. 1 to Oct. 15 as a rule, and the visitor that cannot make it pleasant and profitable to visit our city during these months is certainly hard to please.

WE HOPE HE IS FORGIVEN.

The publisher of the UNITED STATES MILLER recently sent a sample copy of the paper to a gentleman who until recently owned a mill in Tennessee, and we have received the following laconic reply:

RIPLEY, Tenn., Sept. 8, 1885.

My dear Friend:

I do not own a mill now; never owned but one; cost me \$8,000; run it six years and lost \$1,000; sold it on long credit for \$2,000; never got my pay. The Good Book promises forgiveness to those who repent. I have repented in sack-cloth and ashes, and have promised never to buy another mill, and think the Lord has forgiven me for purchasing this one. So you see I do not want any more milling literature. Yours, ever. W. C.

MINNEAPOLIS WHEAT GRADE.

At their meeting in St. Paul, Sept. 9, the Railroad and Warehouse Commission abolished the grades of No. 1 Hard and No. 1 Northern established July 10, other grades to remain the same. The grades now stand thus: No. 1 hard spring shall be sound, well cleaned, and weigh not less than fifty-eight pounds to a measured bushel, composed mostly of Scotch flax. No. 1 northern spring must be sound, well-cleaned, and weigh not less than

fifty-seven pounds to a measured bushel, and shall be composed of hard and soft wheat. The change was brought about by agitation at Duluth. The effect of the change is claimed by experts to grade all good wheat No. 1 hard, and add 4 cents per bushel to the value of all such product.

FREE FOREIGN TRADE AND FETTERED HOME PRODUCTION.

We publish below a vigorous communication from Henry Carey Baird to a contemporary:

SIR—One of the most shallow and impudent frauds which has ever been permitted to dominate the minds of men and to dictate the legislative policy of States, is that thing which has falsely arrogated to itself the name of *free trade*. That it has been enabled, through false pretenses to do as it has, is anything but calculated to give one a high opinion of the capacity of the human mind to discriminate between truth and error, or to take a clear, full and comprehensive view of any question in the slightest degree complex or involving many elements.

The so-called free-trader, really only a *free foreign trader*, has by some unaccountable oversight been permitted to assume a position which could alone belong to an ideal, abstract, unreal community or country, wholly unlike those concrete ones existing among civilized men. This assumption involves ignorance of the fact that civilized society is, of necessity, an artificial one, and that purely abstract arguments, which do not deign to recognize that this society is *not an untaxed one*, are wholly unfitted to its conditions, and, therefore inapplicable to it, and unsound and fallacious when so applied. Hence the unjustifiable nature of the pretense of this so-called free-trader that he is a free-trader at all. How can he be such when he entirely ignores the fact that trade at home—the great trade—is not free and cannot be so, because of the overwhelming necessity of taxation, and that this taxation finally falls upon the producers, against whom his whole system is intended to be, and is, a persistently aggressive and even slanderous warfare?

Here is the way in which this bogus free trade works in Great Britain:

"In a letter to the London *Economist*, Mr. William J. Harris, M. P.," says the *Iron Age*, "draws a very gloomy picture of the condition of the farmers in Great Britain, and he bases upon a series of figures which have not yet been challenged, a pretty sharp thrust at the manufacturing industries. He aims to show that in England the agricultural classes are bearing far more than they should of the burden of taxation, although free trade has put our farmers in direct competition with the owners of foreign virgin soil."

"Mr. Harris estimates that the total valuation of the saleable produce of the soil of England and Wales is £112,511,490. On this the farmers pay in taxation of one kind and another £16,013,000. The labor bill amounts to £84,709,000 so that, deducting rents and tradesmen's bills, 'the amount left for the tenant farmer is nothing.' Mr. Harris concludes that the cultivation of the less fertile arable lands must necessarily be abandoned."

Here we have a government of a great and enlightened nation so lost to all sense of honor and justice to its own producers that it actually imposes upon them taxation to the extent of over fourteen per cent. of the value of their products towards the support of the realm and the different divisions thereof, while it allows

every foreign producer of like products to come into free and untaxed competition with these same home producers! Was ever any system of taxation more blundering or more wicked, or better calculated to destroy a nation? The very idea that the subject or citizen of a State may be deprived of such rights or privileges in his own State, while they are freely granted to foreigners in that State, is monstrous, and the government that is guilty of such a crime has thereby *ipso facto* abdicated all right to command the love and allegiance of its citizens or subjects or the respect of mankind.

And yet there are men in this country, and even journals in this State, that in the name of "free trade," and under the cry of "free raw materials," demand the adoption by our government of this same system of outrage upon its own producers. Will our people tolerate such a wrong as that anywhere from fourteen to twenty per cent. of the value of their products shall be levied in domestic taxation on our own producers, while perfect freedom from taxation is granted to foreigners in introducing like products into our markets here to compete with such taxed American producers? For one I shall not believe that they will commit any such injustice when once they see and appreciate the workings of the system, its fallacies, its false pretense, its shallowness and its iniquities.

HENRY CAREY BAIRD.

Philadelphia, Aug. 27.

A CORN MEAL ROLLER MILL.

Yesterday the mills of Blair & Stewart were started up and made the first meal. As this is a new departure in the process of making corn meal in this country, it would, perhaps, be interesting to know something of the process by which it is made. It is said that this is but the second mill built on the plan. The other is running in Brooklyn, N. Y., and has a daily capacity of 450 barrels per day, and will be increased to 1,000 barrels. The "Little Daisy," the name by which the Broad street mill will be known, has a daily capacity of 125 barrels or over 600 bushels. The reduction is made by what is known as the "roller process," which has given great satisfaction in the reduction of wheat.

The Case Manufacturing Company of Columbus, O., being aware of the superiority of that process for the reduction of wheat, determined to give it a trial on corn, and with that view they made one on the same plan for corn, and their most sanguine expectations have been more than realized.

The mill is a three-story brick. The lower floor is occupied by the engine and line shafting on which is fixed the pulleys for driving the machinery. The engine was built by G. W. Wheeland.

On the second floor are six roller machines, in which the corn is reduced by a gradual process; and a Barnard & Lea packer, where the sacking is done.

On the third floor are found one four-reel chest, and one single-reel chest, eleven set of elevators, one aspirator, one Barnard & Lea's corn cleaner and the meal and flour bins.

When the corn leaves the bin, in which it is stored, it is carried by an elevator into the third story and enters the cleaner, where it is screened and fanned; after which it is passed to the first break, (or first set of rolls), where

it is cracked or broken. It is carried in this condition up to a scalping reel on the third floor where the starch is removed and the hulls and flinty portions of the grain are passed beyond into the second breaks, or rolls, where it is further reduced and carried again into the scalping reel to be deprived of the finer flour, and so on until the process is completed. After the fourth reduction the bran is removed by a scalper, and then passes to the aspirator, where the fine bran is removed by a suction fan and the heavy particles passed again through another set of rolls, and all the coarse particles of bran are in this way deprived of all the meal they contain. It is then passed through another reel, after which it falls in a line by itself. The flinty portions of corn passed through the aspirator and deprived of the light particles of bran contained, and then passed through the fifth and sixth rolls or breaks, and then bolted on a No. 10 and 0 silk cloth, when it is ready for the flour packer. What is taken from No. 10 is called flour, and that from No. 0 meal.

The above machinery was set up by W. J. Brown, an expert miller, who has been in the employ of the company who built the machinery for the last eight years, and the work done is the finest thing of the kind in the State.

The meal and flour are of a pearly whiteness and free from the speck, and very fine meal is found in all meal ground by the old method.—*Chattanooga (Tenn.) Daily Commercial*, Aug. 29.

"A GLASS OF BEER" is the subject of the third in the series of articles on the great American industries that *Harper's Magazine* is now printing which appears in the October number. The facts of the industry are very remarkable. It stands sixth among all the industries of the United States in the amount of capital used, exceeded only by metals, cottons, woolens and worsteds, lumber and grist; and its growth is shown by the fact that whereas in 1880 the production of the United States was something over thirteen million barrels, in 1885 it was over eighteen millions. The United States stands third in the list of beer producing countries, Great Britain at the last general estimate brewing 1,000,000,000 gallons, Germany 900,000,000, and the United States 600,000,000. The census reported 2,191 breweries, employing 28,220 people, who earned wages of \$465.21 yearly—an average higher than in almost any other industry. The article in *Harper's* promises a complete description of the processes of beer-making, from the raising of the hops to the barreling and bottling, and those who indulge in malt liquors will be interested in the many varieties of beer mentioned, from the ordinary "bitter" of England and "lager" of Germany and America to the frozen beer of Tasmania and the condensed beer manufactured in Switzerland for export. The writer points out that the words "ale" and "beer" are used indiscriminately in England, but that American brewers confine the word beer to lager, the product of what is known as the under fermentation process, and ale to the product of the upper fermentation process, which are carried on with different kinds of yeast and at different temperatures. The article is fully illustrated.

A NEW MONEY KING.

Mr. Phil. Armour, the Chicago pork king, has paid \$24,000 for a seat in the New York Stock Exchange, and he says that he expects to get some return for his money. New York is thinking and talking about Mr. Armour, and for some time to come he is apt to get the credit of every sensational and unexplainable thing that transpires. He has graduated in a sharp school, but, withal, he has taught the school aforesaid much more than he has learned from its curriculum; but he is probably meeting trouble in the fact that his methods are so well known in Chicago that he finds

it difficult to make anything count. The New York Stock Exchange is a new field and rich, and its members being as ready for a turn in wheat or hog products as in railroad shares, he may enjoy new opportunities of usefulness to the public. One would have thought that Mr. Armour's pork packing establishments and his beef packing establishments, with their dozen branches and hundreds of agencies, his elevator interests, his deals in wheat and corn, and so on, would have satisfied the ambition of even a very restless man well advanced on the seamy side of life; but no, he must buy a controlling interest in St. Paul to become a railroad magnate, and now he must buy a seat in the Stock Exchange to become a magnate of the street, all regardless of the text that "vaulting ambition o'erleaps its aim, and falls on 'tother side."—*Louisville Courier-Journal*.

ITEMS.

GRAIN dealers in Prussia report a very dull trade.

THE wheat area of Great Britain is rapidly decreasing, a falling off of 18 per cent. being reported since June, 1882.

THE Vienna Baker thus describes the process of making bread in Paris: About 8 P. M. a piece of old dough weighing four or five lbs. is mixed with 17½ lbs. flour and about 4 qts. water, and allowed to stand till 6 A. M. Then 17½ lbs. flour and 4 qts. water are again added and the mixture stands till 2 P. M. Fifty-three lbs. flour and 8 qts. water are added to the mass, and at 8 or 9 P. M., 220 lbs. flour and 18 gallons water with 12 to 18 lbs. yeast are mixed and kneaded with the previous compound. The dough, now weighing 440 lbs., is left till 7 P. M. when 510 lbs. flour and 17 gals. water, into which have been put 4 to 5 lbs. salt and 18 to 37 lbs. yeast, are added and thoroughly kneaded with the rest. It is customary to bake 5 to 6 times from the mass. For the first baking half the dough is used, and produces bread of dark color, sour taste and smooth crust, the latter quality being highly prized in France. For the second baking the remaining half of the dough is mixed with 230 lbs. flour and 17 gals. water, with 4 lbs. salt and 18 to 37 lbs. yeast. Half of this is taken and treated like the first baking, furnishing lighter and better bread. The third baking has the same quantities of flour, salt and yeast added, as is also the case with the fourth and others following. At each process the quality improves, the sixth and last furnishing the superfine products.

SECRETARY STONE, of the Chicago Board of Trade, has compiled the following statement, showing the amount of grain of all kinds in sight in this country and Canada on Aug. 29:

Wheat, bu.	48,136,974
Corn, "	5,474,459
Oats, "	3,883,528
Rye, "	907,173
Barley, "	114,878

According to these figures there was an increase during the past week, in the stock of wheat in sight amounting to 553,052 bu., in corn of 1,015,809 bu., in oats of 1,765,896 bu., in rye of 74,387 bu., and in barley of 1,646 bu.

The stock in sight one year ago amounted to 17,773,559 bu. of wheat, 4,127,227 bu. of corn, 1,909,938 bu. of oats, 710,089 bu. of rye, and 197,218 bu. of barley.

NEWS.

A new roller flour mill is to be erected at Remsen, Ia. A 35,000 bushels elevator is being built at Wisner, Neb.

A large flouring mill is projected at East Portland, Ore.

Matt. McClurg is erecting a corn-meal mill at Knoxville, Tenn.

Gillespie Bros. are building a grist and saw mill at Millboro, Va.

A 125-barrels, roller flour-mill is now being erected at Devil's Lake, Dak.

At Hamilton, Va., J. F. Dodd is remodeling his flour mill to the roller system.

A flood at Dallas, N. C., has wrought some damage to the mill of E. L. Pegram.

T. J. Wren & Son, of Rutherford Depot, Tenn., have finished their 50 bbl. flour mill.

White & Bro., millers at Warrenton, Va., have dissolved, H. M. White succeeding.

J. H. & T. R. Batte have begun work on a steam grist mill and gin, at Caldwell, Tex.

At Mitchell's Station, Ala., Belser & Parker are putting up a grist mill and gin.

It costs the Minnesota boiler owners from \$30,000 to \$50,000 per year for boiler inspectors' fees.

Campbell & Rosser have just completed a 200-barrel corn-meal mill at Denmark, Tenn. Steam power.

Nease & Hill Bros. are erecting a 40-bbls. corn-mill (stone system), at am power, at Double Springs, Tex.

Burned, Sept. 10, Wm. Elliott's flour mill, three miles from Richmond, Ind. Loss \$4,000; insurance, \$1,300.

Messrs. Williams & Hardy will build a \$30,000 flour mill at Montague, Tex. The contract has not yet been awarded, we understand.

The Case Manufacturing Co., Columbus, O., have just shipped two car loads of break machines, purifiers and rolls to England, and report the foreign demand for their specialties increasing very rapidly.

A Newport antiquarian claims that the old stone mill was built by one of the ancestors of Benedict Arnold, who constructed it that he might live out of the reach of unfriendly neighbors.

A number of mills have started with these reels for all the bolting, and report the best of results. They say they are receiving nothing but praise from the reels everywhere, and that the trade in them is constantly increasing.

The Cummer Engine Co. is also selling a great many of the Jonathan Mills universal flour dressers, which are being extensively adopted for the entire bolting in new mills; they have lately received orders for a full line of these reels for a new mill in California, one in Kansas, two in New York, and one in Pennsylvania.

The large flouring mill of Rush & Sprague, at Leavenworth, Kas., was totally destroyed by fire on the 18th inst. The mill was the largest in the State, and a little over a year ago remodeled to a complete roller system. The loss is put at \$100,000, covered by insurance.

The Manville Covering Company, of Milwaukee, is a recent organization for the manufacture of boiler covering, etc., with offices at 72 Second street, Milwaukee, and 240 Lake street, Chicago. The officers are C. B. Manville, president, J. M. Lyon, Secretary and treasurer. The factory at Milwaukee is a large one, and is now fully equipped for the filling of orders.

The Sumner Milling Company's mill, at Bridgeport, Ill., is stopped. The senior member of the firm, Mr. Breidenthal, declines to make a statement. The assets run near \$107,000; liabilities to farmers, very small. The causes assigned are general business depression and short crops here for several years.

Articles of association have been filed by the St. Croix Elevator Company, of New Richmond, Wis., the capital stock being \$25,000. The object is to construct and operate elevators on the lines of the Wisconsin Central and the Chicago, St. Paul, Minneapolis & Omaha Railway Companies.

The Georgia flour-mill owners held a convention in Atlanta, on Sept. 15th. The convention was called for the purpose of taking some action looking to the reduction in the present rate of insurance upon mill

property. The millers claim that they pay higher rates than they should pay. Other matters of interest to the gentlemen engaged in this industry were acted upon.

The Cummer Engine Co., of Cleveland, O., has recently received the following orders for engines: No. A 56-H. P. engine for the Torrington Manufg Co., of Torrington, Conn.; 130-H. P. engine for the Baker Wire Co., of Des Moines, Ia.; one of 55-H. P. for the Journal Co., of Kansas City, Mo.; one of the same size for the Kansas City Times, also Kansas City; a 67-H. P. engine for the Sike's Chair Co., of Buffalo, N. Y.; and one 80-H. P. for F. Baer, of Greensburgh, Pa.

Arrangements were concluded this week for making considerable additions and improvements to the Occidental mill, owned by McAlister Bros. & Co. Heretofore its business has been principally in the grinding of feed, but now machinery will be introduced for the manufacture of rye flour and bolted meal by the roller process and on a larger scale. The machinery to be added will be 3 sets of three-high rolls, 1 purifier, 4 fourteen foot reels, 4 six foot, 1 six foot and 8 five foot scalpers. With this the capacity of the mill will be as follows in ten hours: Rye flour, 40 bbls.; bolted corn meal, 10 tons; feed, 60 tons. A change has recently occurred in the firm, S. B. Chase retiring, the style McAlister Bros. & Co. being adopted. The members are Geo. and H. A. McAlister and J. B. Bassett, the latter gentleman being of the Columbia Mill Co.—*N. W. Miller, Sept. 18.*

The following are among the many orders received by the Case Manufacturing Co., Columbus, O., during the past month: From the Fleniken Turbine Co., Dubuque, Ia., for machinery to be shipped to B. M. Van Cort & Co., Zwingle, Ia.; from Simpson, Norris & Co., Johnstown, O., for a full outfit of breaks, rolls, and all necessary machinery for a complete roller mill on the Case system; from The W. A. Huffman Implement Co., Fort Worth, Tex., for additional rolls to be placed in the mill of L. P. Adamson, Weatherford, Tex.; from W. H. Mann, De Witt, Neb., for rolls; from Carnahan, Snyder & Co., Coshocton, O., for a full line of breaks, rolls, purifiers, scalpers, centrifugal reels, bolting reels &c., for a complete roller mill on the Case system; from Johnson & Long, Eldorado, Kan., for all the necessary machines and appliances for a full roller mill on the Case system; from J. W. & L. T. Johnson, Friendship, Ind., for new machinery; from Davis & Greely, Lebanon, O., for additional machinery; from E. Kimbel & Co., Covington, O., for a complete plant of breaks, rolls, purifiers, centrifugal reels, scalpers, bolting reels &c., for a roller mill on the Case system; from Chas. H. Culver, Great Bend, Kan., for three pairs rolls with patent automatic feed, and other machinery; from W. T. Pyne, Louisville, Ky., for rolls to be placed in the mills he is remodeling at Sellersburg, Ind., and Scottsburg, Ind.; from A. H. Fairchild & Son, North Bloomfield, N. Y., for rolls to be shipped to E. Light, Avon, N. Y.; from Montague & Co., Chattanooga, Tenn., for a late improved centrifugal reel; from John Cullis, Auburn, Ont., Canada, for two pairs rolls with patent automatic feed; from Vance Graham, Camden, Ind., for a full outfit of breaks, rolls, purifiers, centrifugal reels, bolting reels &c., for a complete roller mill on the Case system; from Dehner Wuerpel Mill Building Co., St. Louis, Mo., for 23 pairs of rolls with patent automatic feed and other machinery for the mills they are remodeling at Jonesboro, Ill., Mascoutah, Ill., and the full roller mill they are building at Garfield, Kan.; from Geo. Slade, Goodrich, Mich., for rolls.

ROLLS AND STONES.—A FRENCH VIEW.

In an article of earlier date we quite advisedly said that the struggle between the new and old system of milling had incontestably been judged to be in favor of the new or roller system. This fact is proved by the numerous recent milling exhibitions, at which the roller mill is presented under all its various aspects. But if the question of principle is decided, that is to say the replacing partially or wholly of stones by rolls, everything is not yet settled; the proper application of rolls remains to be decided.

The adoption of rolls is now almost complete, but with regard to details the systems proposed by our engineers are too numerous and essentially very different. This profu-

sion of systems is regrettable, and tends to render contradictory the statements of the various defenders of the new systems, to such a degree, in fact, that the principle itself becomes hidden. From this state of things the natural result is a sort of uncertainty and embarrassment in fixing their opinion on the part of the millers desirous of improving their plants. It is beyond doubt that any system, whether mixed or not, will give bad results if not ably worked, and erected with some regard to the exigencies of the situation.

The systems which are offered to millers may be divided as follows:

1. Stones to break the wheat, and rolls to reduce the semolina, etc.
2. Discs for the reduction of wheat, and millstones for the reduction of fine middlings, with rolls for reducing the tailings, etc.
3. Gradual reduction, pure and simple, with corrugated and smooth iron rolls.
4. The cutting up of the wheat by special machines, purification of the granules therefrom, and the reduction thereof by smooth rolls.
5. The degerning of the wheat, breaking it longitudinally through the crease (which is only partly carried out) and the subsequent reduction by rollers.
6. The use of disintegrators, such as Carr's and its imitators, or reduction by means of concussion.

Each of these various modes of reduction has its special value, and it only remains to pick out from them what may be specially suitable for special and determined cases, and reject all the rest.

It would seem advisable to counsel our small millers to preserve the greater part of their present machinery, to which it will suffice if they add the necessary adjuncts to render the transformation of their mill complete. In bringing to bear upon their style of manufacture the best assistance and utmost care, by having a useful combination of dressing and purifying machines, they will find it possible to obtain the best results, with regard to quality, which anyone can expect.

With regard to the relative qualities of roller and stone-made flour, it is evident that the former sells better than the latter, and that any difficulty in panification experienced with the former is compensated by other advantages, although stone-made flour is more tractable in kneading. We have never denied the merits of good stone milling, specially carried on for a special purpose, but it is evident that under such circumstances stones present more difficulties to the miller than rolls equally favored. For little mills, where the work done is always under surveillance of the master, and the motive power irregular, stones, assisted by rolls, can give good results; but in large new establishments, stones should not find a place.

There exist, as is well-known, doubts as to the results obtained by rollers from damp wheats; and it is regrettable that roller mill engineers have not yet proved that rolls do better work on such wheats than stones. The case would be easy to prove if we experimented on wheat artificially damped; and we have no doubt that the roller mill would show less inconveniences than the stones. Positive proof on this head, however, is not yet forthcoming.

By simple practice, born of experience, the miller can tell up to what degree of humidity

the wheat can be properly reduced on stones, without undue heat and caking; certain qualities of stones are of course better than others for this purpose, whilst other qualities of stone lead to much trouble and inconvenience. In some cases, with damp and sprouted wheat, the stones will not work, except with additional power.

It will be remembered that in 1851 our wheat was so damp as to be entirely unworkable on stones; and it is to this experience that our remarks are directed. Some engineers pretend that to thoroughly clean the bran from such damp wheats, a very open, lively stone is required, specially and heavily dressed; other better inspired people think just the reverse. We are of opinion that good stones, well dressed, and fed moderately, in order to reduce the pressure on the meal, run no risk of caking or over-heating, except perhaps immediately after the stone has become polished.

We are a sincere partisan of simplification in milling and we do not despair of seeing Hungarian gradual reduction milling abandoned in favor of the French "Rational" reduction system of milling. Supposing sprouted wheat to be experimented upon by both stones and rolls, although both would meet with difficulties, the advantage would be in favor of rolls.

Whatever the system in use it is evident that the variation in the quality and condition of wheat from one year to another will necessitate modifications in both stone and roller milling; and that in the subject of dressing especially will millers have to observe these changes.—*Etienne Descoury in the Journal de la Meunerie.*

HOW TO PRESERVE TOOLS.

The following hints on the best means of keeping tools in good condition, which we take from the *Building and Engineering Times*, of London, can not fail to be useful.

WOODEN PARTS.—The wooden parts of tools, such as the stocks of planes and handles of chisels, are often made to have a nice appearance by French polishing; but this adds nothing to their durability. A much better plan is to let them soak in linseed oil for a week, and rub them with a cloth for a few minutes every day for a week or two. This produces a beautiful surface, and at the same time exerts a solidifying and preservative action on the wood.

IRON PARTS.—**Rust preventives.**—The following recipes are recommended for preventing rust on iron and steel surfaces:

1. Caoutchouc oil is said to have proved efficient in preventing rust, and to have been adopted by the German army. It only requires to be spread with a piece of flannel in a very thin layer over the metallic surface, and allowed to dry up. Such a coating will afford security against all atmospheric influences, and will not show any cracks under the microscope after a year's standing. To remove it, the article has simply to be treated with caoutchouc oil again, and washed after 12 to 24 hours.

2. A solution of India rubber in benzine has been used for years as a coating for steel, iron and lead, and has been found a simple means of keeping them from oxidizing. It can be easily applied with a brush, and is easily rubbed off. It should be made about the consistency of cream.

3. All steel articles can be perfectly preserved from rust by putting a lump of freshly-burnt lime in the drawer or case in which they are kept. If the things are to be moved (as a gun in its case, for instance), put the lime in a muslin bag. This is especially valuable for specimens of iron when fractured, for in a moderately dry place the lime will not want any renewing for many years, as it is capable of absorbing a large quantity of moisture. Articles in use should be placed in a box nearly filled with thoroughly pulverized slaked lime. Before using them, rub well with a woolen cloth.

4. The following mixture forms an excellent brown coating for protecting iron and steel from rust: Dissolve two parts crystallized iron chloride, two antimony chloride, and one tannin, in four water, and apply with a sponge or rag, and let dry. Then another coat of the paint is applied, and again another, if necessary, until the color becomes as dark as desired. When dry it is washed with water, allowed to dry again, and the surface polished with boiled linseed oil. The antimony chloride must be as nearly neutral as possible.

5. To keep tools from rusting, take $\frac{1}{2}$ ounce camphor, dissolve in 1 pound melted lard; take off the scum and mix in as much fine black lead (graphite) as will give it an iron color. Clean the tools and smear with this mixture. After 24 hours rub clean with a soft linen cloth. The tools will keep clean for months under ordinary circumstances.

6. Put 1 quart fresh slaked lime, $\frac{1}{2}$ pound washing soda, $\frac{1}{2}$ pound soft soap in a bucket, and sufficient water to cover the articles; put in the tools as soon as possible after use, and wipe them up next morning, or let them remain until wanted.

7. Soft soap, with half its weight of pearl-ash, 1 ounce of mixture in about 1 gallon boiling water, is in every-day use in most engineers' shops in the drip-cans used for turning long articles bright in wrought-iron and steel. The work, though constantly moist, does not rust, and bright nuts are immersed in it for days till wanted, and retain their polish.

8. Melt slowly together 6 ounces or 8 ounces lard to 1 ounce resin, stirring till cool; when it is semi-fluid, it is ready for use. If too thick, it may be further let down by coal oil or benzine. Rubbed on bright surfaces ever so thinly it preserves the polish effectually, and may be readily rubbed off.

9. To protect metals from oxidation—polished iron or steel, for instance—the requisite is to exclude air and moisture from the actual metallic surface; wherefore, polished tools are usually kept in wrappings of oil cloth and brown paper; and, thus protected, they will preserve a spotless face for an unlimited time. When these metals come to be of necessity exposed, in being converted to use, it is necessary to protect them by means of some permanent dressing; and boiled linseed oil, which forms a lasting film of covering as it dries on, is one of the best preservatives, if not the best. But in order to give it body, it should be thickened by the addition of some pigment, and the very best—because the most congenial—of pigments is the ground oxide of the same metal—or, in plain words, rusted iron reduced to an impalpable powder, for the dressing of iron or steel—which thus forms the pigment or red oxide paint.

10. Slake a piece of quick lime with just water enough to cause it to crumble, in a covered pot, and while hot add tallow to it and work into a paste and use this to cover over bright work; it can be easily wiped off.

11. Olmstead's varnish is made by melting 2 ounces resin in 1 pound fresh sweet lard, melting the resin first and then adding the lard and mixing thoroughly. This is applied to the metal, which should be warm if possible, and perfectly cleaned; it is afterward rubbed off. This has been well proved and tested for many years, and is particularly well suited for planished and Russia iron surfaces, which a slight rust is apt to injure very seriously.

RUST REMOVERS.—1. Cover the metal with sweet oil well rubbed in, and allow to stand for 48 hours; smear with oil applied freely with a feather or piece of cotton wool, after rubbing the steel. Then rub with unslaked lime reduced to as fine a powder as possible.

2. Immerse the article to be cleaned for a few minutes, until all the dirt and rust is taken off, in a strong solution of potassium cyanide, say about $\frac{1}{2}$ ounce in a wineglassful of water, take it out and clean it with a toothbrush with some paste composed of potassium cyanide, Castile soap, whiting and water, mixed into a paste of about the consistency of thick cream.

THERE seems little prospect that there will be any movement of grain out of Milwaukee port or Chicago until the blockade at Buffalo is raised. At present there is about 4,000,000 bushels of wheat in store at Buffalo, and the working elevators are so filled up that they can receive no more grain. There is very little grain going east at present, the receipts accumulating in the elevators. The schooner Guido Pfister, of Milwaukee arrived at Buffalo on September 29 with 48,000 bushels of wheat, but had not gone to an elevator up to evening. Arrangements are being made to open five or six more elevators which have been shut down for some time, among them the Brown, Lyon, William Wells, Swiftsure, and perhaps the Watson. It will take some time, however, to get them in repair.

THINGS WORTH KNOWING.

INSOLUBLE CEMENT FROM GLUE.—In order to render glue insoluble in water, even hot water, it is only necessary, when dissolving glue for use, to add a little potassium bichromate to the water and expose the glued part to the light. The proportion of bichromate will vary with circumstances; but for most purposes about one-fiftieth of the amount of glue will suffice.

OLD WHITEWASHED WALLS are a difficult surface to make paper adhere to properly. In treating such a wall, the loose whitewash should be scraped off and a strong coat of glue size applied to the wall. After this has become dry, the paper may be put on. But this is not all. The paste used on the paper should also be specially prepared. Pure wheat-flour paste should be used, and to every pailful of it, thinned to the proper consistency, use about one pound of common sugar thoroughly mixed with the paste. Occasionally paper-hangers will have difficulty with this kind of work, but if they observe these hints, not forgetting the sugar, difficulties will be of rare occurrence.

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OFFICE OF

Cawker's American Flour Mill Directory

A N D

THE UNITED STATES MILLER.

MILWAUKEE, WIS., August, 1885.

TO OWNERS OF FLOURING MILLS:

We desire to revise and correct our list of *Flour Mill Owners*, and therefore beg that you will answer the questions below by *return mail*. This list is used for the purpose of reaching flour mill owners by mill furnishers, engine and water wheel builders, flour and grain brokers, city bakers, insurance companies, publishers of milling papers, and in short by manufacturers of and dealers in everything used in or about a flour mill. You will therefore perceive that it is of great value to *you* to be properly entered in our list. If you are not already a subscriber to the *United States Miller*, we trust you will order your name entered on our subscription list at once. We have sent you sample copies of the paper at various times, and we think that you will certainly admit that it is worth the small sum of a *dollar a year*. We want you for regular subscribers, but whether you do subscribe for the *United States Miller* or not, **DO NOT FAIL TO ANSWER OUR QUESTIONS** by return mail. Address

UNITED STATES MILLER, 124 Grand Ave., Milwaukee, Wis.

What is the name of proprietor, or firm, and name, if any, of mill?

Name Post Office

County State

Do you use water or steam power?

How many barrels of wheat flour can your mill make in 24 hours if you run up to full capacity?

Do you use the Roller or Stone system, or both?

Do you make a specialty of making rye flour, corn-meal, oat-meal, buckwheat, or hominy?

Please enclose your business card and oblige us with the names of all mill owners who receive their mail at your post-office, and give us any information that will tend to make our work perfect.

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For \$1.60 will send the UNITED STATES MILLER for one year and Webster's Practical Dictionary, or for \$2.25 will send the paper for two years and the Dictionary.—For \$2.75 will send the UNITED STATES MILLER for one year and Moore's Universal Assistant and Complete Mechanic.—For \$3.25 will send the UNITED STATES MILLER for one year and Dr. Cowan's Science of a New Life. A very valuable book which every man and woman should read.—For \$1.50 will send the UNITED STATES MILLER for one year and "Everybody's Paint Book," recently published.—For \$1.25 we will send the UNITED STATES MILLER for one year and "The Fireman's Guide, a Handbook on the Care of Boilers." In the following list, the figures to the left of the name of each paper indicate the regular subscription price of that paper, and the figure to the right, the combination price for the UNITED STATES MILLER for One Year and the paper specified.

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Subscription price of each paper named below:	ONE YEAR.	Subscription price of each paper named below:	ONE YEAR.	Subscription price of each paper named below:	ONE YEAR.
\$2.00 Northwestern Miller.....	\$2.50	\$1.25 Chicago Weekly Times.....	\$2.10	\$1.00 Inter-Ocean, Chicago.....	\$2.00
1.00 American Miller.....	1.50	1.00 Chicago Weekly Tribune.....	2.00	2.00 Mechanical Engineer.....	2.50
1.50 London Miller.....	2.50	5.00 Turf, Field and Farm.....	5.50	1.00 Mechanical News.....	2.00
1.00 Millstone.....	1.50	1.00 Miller Journal.....	1.50	1.50 Milling World, (Weekly).....	2.00
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4.00 Hints on Mill Building(book).....	4.00	1.00 Boston Globe Democrat.....	2.00	3.00 New York Weekly.....	3.25
3.20 Scientific American.....	3.50	5.00 Bradstreet's.....	4.50	1.00 Post-Dispatch, (St. Louis).....	2.00
1.50 American Agriculturist.....	2.00	4.00 Frank Leslie's Chimney Corner.....	4.25	3.00 St. Nicholas.....	3.60
4.00 Harper's Magazine.....	4.20	3.00 Frank Leslie's Illustrated News Paper.....	4.25	1.00 Milwaukee Sentinel.....	2.00
4.00 Century Magazine.....	4.60	2.50 Frank Leslie's Popular Monthly.....	3.15	1.00 New York Sun.....	2.00
2.50 American Machinist.....	3.20	4.50 Harper's Weekly.....	4.10	1.00 New York World.....	2.00
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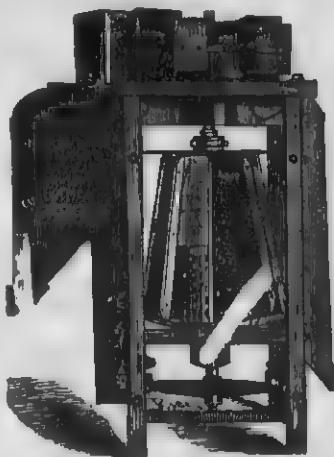
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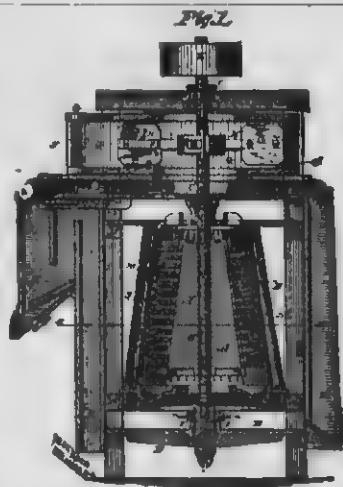
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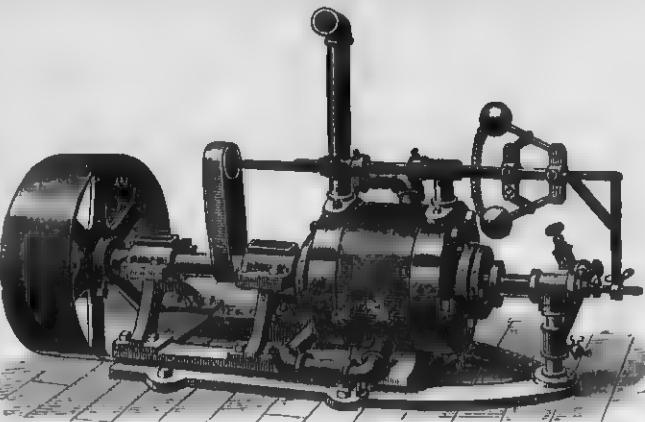
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Important Notice to the Milling and Mill-Furnishing Public

We publicly announced sometime since that we had determined to no longer submit to the secret violation of our injunction by the George T. Smith Middlings Purifier Company. We say *secret*, for, while the Smith Co. and their associates ostensibly obeyed the injunction, and withdrew their advertisements and notices from the trade publications, they, in fact, have, in the meanwhile been secretly selling Dust Collectors, and in an underhanded manner endeavoring to injure our trade. Accordingly, proceedings for the punishment of the Smith Company and their associates were instituted a short time since. These proceedings were to be heard by order of the court on Tuesday, September 1st, the day also fixed by mutual stipulation for the trial of the action. When the day arrived, and the respective rights of the parties were to be weighed in the balance, we were confronted in court by an application on the part of the Smith Company and its co-plaintiffs, for a change of venue to the United States Court. This, notwithstanding the stipulation to try the case on that day. Under an Act of Congress the application had to be granted, and hence all proceedings are at a stand still, until the meeting of the United States Court in October. *Millers and Mill-Furnishers may draw their own conclusions from this "Back Down."*
Comment is unnecessary. We only desire in this connection to repeat the warning heretofore given in regard to purchasing machines from the George T. Smith Middlings Purifier Company. The present situation is as follows:

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3d. The Milwaukee Dust Collector Manufacturing Co., are the sole and exclusive licensees, and no one is authorized to imitate the Prinz Dust Collector.

the Prinz Dust Collector.
4th. Parties buying from any one but ourselves will be charged as infringers, and held liable as such.
5th. Everyone, who with knowledge of these facts, helps or assists the George T. Smith Middlings Purifier Company, Samuel L. Bean or Kirk & Fender, in violating the injunction may be made liable as a joint tort feasor.
6th. No guarantee of the Smith Company can stop the operation of the law or save a violator of the injunction from

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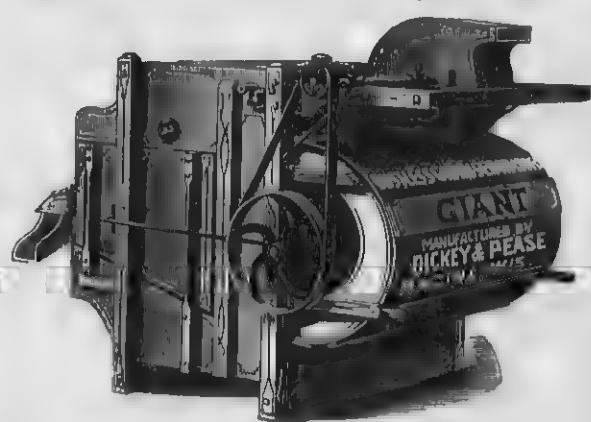
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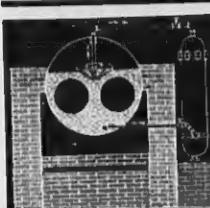
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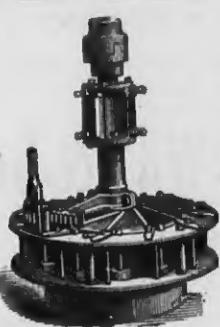
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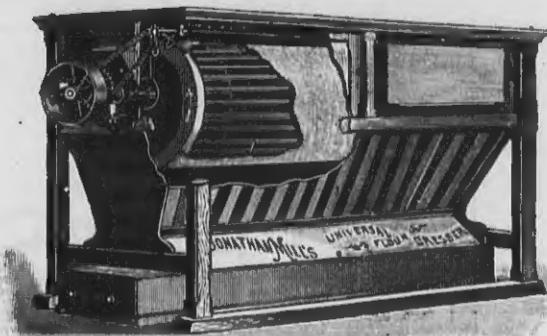
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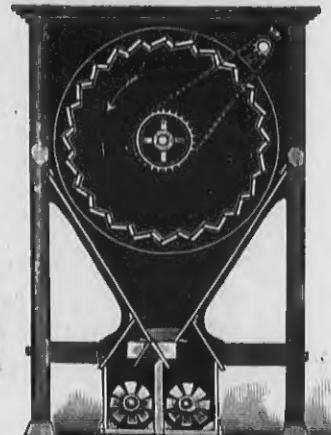
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